

SEQUENCE LISTING

<110> HIRANO, Toshio
YAMASHITA, Susumu

<120> EMT-Inducing Agents

<130> SPO-128

<140> US 10/584,742

<141> 2006-06-26

<150> PCT/JP2004/019246

<151> 2004-12-22

<150> JP 2003-435122

<151> 2003-12-26

<160> 43

<170> PatentIn version 3.3

<210> 1

<211> 742

<212> PRT

<213> Danio rerio

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35 40 45

Ser Leu Ala Leu Leu Trp Ala Cys Ser Val Gly Ala Gly Ser Asp Cys
50 55 60

Lys Ser Val Ala Ile Glu Thr Asp Ser Arg Ile Ala Glu Gln Thr Gln
65 70 75 80

Gln Arg His Leu Gln Ala Leu Phe Asp Lys Tyr Gly Gln Asn Gly Ser
85 90 95

Ile Ser Leu Glu Gly Leu Phe Asn Leu Leu Lys Gly Val Gly Leu Asp
100 105 110

Arg Ile Arg Lys Val Met Val His His Pro Gly Asn Ala His Asn His
115 120 125

Thr His Thr His Asp His Thr His Thr His Val Asp Lys Leu Thr Ala
130 135 140

His Thr His Pro Val Thr Thr Lys Lys Gly Asp Met Asp His Ser Val
145 150 155 160

Glu Lys Ser Asp Pro Val Pro Lys Ala Gln Pro Asp Pro Ala Ser Gly
165 170 175

Lys Lys Ser Gln Ser Asp Ala His His Asn Leu Tyr Met Lys Met Asn
180 185 190

Gln Glu Ser Thr Thr Ala Leu Thr Thr Pro Ser Tyr Val Thr Arg Ser
195 200 205

Arg Arg Thr Asn Arg Ser Ala Asp Tyr Asp Phe Thr Gln Asp His Ala
210 215 220

Ser Phe Ser Pro Ser Gln Pro Asn Val Thr His Ser Asn His Thr His
225 230 235 240

His Asp Glu Asp Thr Pro Thr His Gln His Asp Asp His Asp Glu His
245 250 255

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260 265 270

Gln Thr His Gly Met Arg Lys Glu Ala Ser Leu Ser Val Lys Asp Phe
275 280 285

Ser Phe Leu Cys Pro Ala Leu Leu Met Gln Ile Asp Ser Lys Ser Cys
290 295 300

Ile Val His Glu Asp Glu Asp Glu His Ser Asp His Ser His His His
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Lys His His His His His Asp His Gln His Leu Gln His Pro His
325 330 335

Asn His Thr Asn Gly Arg Gly Gln Arg Asn Thr Pro Val Tyr Ile Ala
340 345 350

Trp Leu Gly Gly Phe Leu Ser Ile Thr Leu Ile Ser Leu Leu Ala Leu
355 360 365

Val Gly Val Val Leu Ile Pro Leu Met Asn Arg Val Cys Phe Asn Phe
370 375 380

Leu Leu Ser Phe Leu Val Ala Leu Ala Val Gly Thr Leu Ser Gly Asp
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Ala Leu Leu His Leu Ile Pro His Ser Gln Gly His His His His Gly
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His Ser Glu Glu His Ala Glu Glu Asp Ser Leu Arg Pro Val Trp
420 425 430

Thr Gly Leu Thr Ala Leu Ser Gly Val Tyr Ile Met Phe Leu Ile Glu
435 440 445

His Phe Leu Thr Leu Gly Lys Met Tyr Lys Asp Lys Asn Gln Lys Val
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Gln Lys Arg Val Asp Leu Thr Thr Glu Val Leu Glu Ser Glu Lys Leu
465 470 475 480

Pro Ser Leu Glu Glu Asn Asp Val Lys Ile Glu Ala Ala Glu Thr Asn
485 490 495

Gly Gly Arg Ala Leu Ala Glu Glu Glu Val Met Leu Gly Ala Glu
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Leu Tyr Asn Asp Ile Asp Cys Glu Asn Lys Cys His Ser His Phe His
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Asp Thr Val Gly Gln Ser Asp Glu Gln His His His His His Asp Tyr
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His His Ile Leu His His His His Ser Gln Asn His His Pro His Thr
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His Thr His Arg His Thr His Ser Tyr Ser Gln Gln His Phe Glu Gln
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Ala Gly Val Ala Thr Leu Ala Trp Met Val Ile Met Gly Asp Gly Leu
580 585 590

His Asn Phe Ser Asp Gly Leu Ala Ile Gly Ala Ala Phe Thr Glu Gly
595 600 605

Leu Ser Ser Gly Leu Ser Thr Ser Val Ala Val Phe Cys His Glu Leu
610 615 620

Pro His Glu Leu Gly Asp Phe Ala Val Leu Leu Lys Ala Gly Met Ser
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Val Arg Gln Ala Met Leu Tyr Asn Leu Leu Ser Ala Leu Met Gly Tyr
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Leu Gly Met Ile Ile Gly Ile Leu Ile Gly His Tyr Ala Glu Asn Val
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Ala Thr Trp Ile Phe Ala Leu Thr Ala Gly Leu Phe Met Tyr Val Ala
675 680 685

Leu Val Asp Met Val Pro Glu Met Leu His Asn Asp Ala Ser Glu Ala
690 695 700

Gly Phe Ser His Tyr Gly Phe Phe Leu Leu Gln Asn Ala Gly Ile Leu
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Gln Leu Asp Leu Gly Tyr
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35 40 45

Ala Ile Ser Thr Arg Gln Tyr His Leu Gln Gln Leu Phe Tyr Arg Tyr
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Gly Glu Asn Asn Ser Leu Ser Val Glu Gly Phe Arg Lys Leu Leu Gln
65 70 75 80

Asn Ile Gly Ile Asp Lys Ile Lys Arg Ile His Ile His His Asp His
85 90 95

Asp His His Ser Asp His Glu His His Ser Asp His Glu Arg His Ser
100 105 110

Asp His Glu His His Ser Asp His Glu His His Ser Asp His Asn His
115 120 125

Ala Ala Ser Gly Lys Asn Lys Arg Lys Ala Leu Cys Pro Asp His Asp
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Ser Asp Ser Ser Gly Lys Asp Pro Arg Asn Ser Gln Gly Lys Gly Ala
145 150 155 160

His Arg Pro Glu His Ala Ser Gly Arg Arg Asn Val Lys Asp Ser Val
165 170 175

Ser Ala Ser Glu Val Thr Ser Thr Val Tyr Asn Thr Val Ser Glu Gly
180 185 190

Thr His Phe Leu Glu Thr Ile Glu Thr Pro Arg Pro Gly Lys Leu Phe
195 200 205

Pro Lys Asp Val Ser Ser Ser Thr Pro Pro Ser Val Thr Ser Lys Ser
210 215 220

Arg Val Ser Arg Leu Ala Gly Arg Lys Thr Asn Glu Ser Val Ser Glu
225 230 235 240

Pro Arg Lys Gly Phe Met Tyr Ser Arg Asn Thr Asn Glu Asn Pro Gln
245 250 255

Glu Cys Phe Asn Ala Ser Lys Leu Leu Thr Ser His Gly Met Gly Ile
260 265 270

Gln Val Pro Leu Asn Ala Thr Glu Phe Asn Tyr Leu Cys Pro Ala Ile
275 280 285

Ile Asn Gln Ile Asp Ala Arg Ser Cys Leu Ile His Thr Ser Glu Lys
290 295 300

Lys Ala Glu Ile Pro Pro Lys Thr Tyr Ser Leu Gln Ile Ala Trp Val
305 310 315 320

Gly Gly Phe Ile Ala Ile Ser Ile Ile Ser Phe Leu Ser Leu Leu Gly
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Val Ile Leu Val Pro Leu Met Asn Arg Val Phe Phe Lys Phe Leu Leu
340 345 350

Ser Phe Leu Val Ala Leu Ala Val Gly Thr Leu Ser Gly Asp Ala Phe
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Leu His Leu Leu Pro His Ser His Ala Ser His His His Ser His Ser
370 375 380

His Glu Glu Pro Ala Met Glu Met Lys Arg Gly Pro Leu Phe Ser His
385 390 395 400

Leu Ser Ser Gln Asn Ile Glu Glu Ser Ala Tyr Phe Asp Ser Thr Trp
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Lys Gly Leu Thr Ala Leu Gly Gly Leu Tyr Phe Met Phe Leu Val Glu
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His Val Leu Thr Leu Ile Lys Gln Phe Lys Asp Lys Lys Lys Lys Asn
435 440 445

Gln Lys Lys Pro Glu Asn Asp Asp Asp Val Glu Ile Lys Lys Gln Leu
450 455 460

Ser Lys Tyr Glu Ser Gln Leu Ser Thr Asn Glu Glu Lys Val Asp Thr
465 470 475 480

Asp Asp Arg Thr Glu Gly Tyr Leu Arg Ala Asp Ser Gln Glu Pro Ser
485 490 495

His Phe Asp Ser Gln Gln Pro Ala Val Leu Glu Glu Glu Val Met
500 505 510

Ile Ala His Ala His Pro Gln Glu Val Tyr Asn Glu Tyr Val Pro Arg
515 520 525

Gly Cys Lys Asn Lys Cys His Ser His Phe His Asp Thr Leu Gly Gln
530 535 540

Ser Asp Asp Leu Ile His His His Asp Tyr His His Ile Leu His
545 550 555 560

His His His Gln Asn His His Pro His Ser His Ser Gln Arg Tyr
565 570 575

Ser Arg Glu Glu Leu Lys Asp Ala Gly Val Ala Thr Leu Ala Trp Met
580 585 590

Val Ile Met Gly Asp Gly Leu His Asn Phe Ser Asp Gly Leu Ala Ile
595 600 605

Gly Ala Ala Phe Thr Glu Gly Leu Ser Ser Gly Leu Ser Thr Ser Val
610 615 620

Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp Phe Ala Val
625 630 635 640

Leu Leu Lys Ala Gly Met Thr Val Lys Gln Ala Val Leu Tyr Asn Ala
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Leu Ser Ala Met Leu Ala Tyr Leu Gly Met Ala Thr Gly Ile Phe Ile
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Gly His Tyr Ala Glu Asn Val Ser Met Trp Ile Phe Ala Leu Thr Ala
 675 680 685

Gly Leu Phe Met Tyr Val Ala Leu Val Asp Met Val Pro Glu Met Leu
 690 695 700

His Asn Asp Ala Ser Asp His Gly Cys Ser Arg Trp Gly Tyr Phe Phe
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Leu Gln Asn Ala Gly Met Leu Leu Gly Phe Gly Ile Met Leu Leu Ile
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| tggccacgccc tctgcccagt gatgtcaactg gcactgctgt gggcgtgttc agtggggcg | 180 |
| ggttcagact gcaaatactgt ggccatttag actgacagacc gcatacgaga acaaacacag | 240 |
| cagcgtcacc tacaggctct gttcgacaag tatggccaga acggcagcat ctccctagaa | 300 |
| ggcctttca acctacttaa aggggtcggtt cttgaccgca tccggaaagt gatggtgcat | 360 |
| catcctggaa atgcccataa tcacacacac acgcatgatc acacacacac tcatgtggac | 420 |
| aaactcacgg cgcacacaca tccggtcacc accaagaagg gagacatgga tcacagcgtg | 480 |
| gagaagagtg accctgtccc aaaagcacag ccagatcctg cctctggaa gaaaagccag | 540 |
| tcagatgcgc atcacaacct gtacatgaag atgaaccagg aatccaccac agctttgact | 600 |
| acggcgtcat atgttaccag atcacggcg accaatcgca gcgccgatta tgattttaca | 660 |
| caggaccacg cctcctttag ccccaagtca gccaatgtga cacactcaaa ccacacccat | 720 |
| catgatgagg acacgcccac acaccagcat gatgaccatg atgagcacga acatgcccgt | 780 |
| gctagtttag ggtgtcaaaa tgcctccacg atcctgcaga cgcatggcat gagaaaggaa | 840 |
| gcaagtctct cagttaaagga cttcagtttc ctctggcttg ctcttctcat gcagattgat | 900 |

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| gacgagcatt | |
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| aaacaccacc | 1020 |
| accatcatca | |
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| cacctgcagc | |
| atccacataa | |
| ccacaccaat | |
| ggaagaggcc | 1080 |
| agaggaacac | |
| tccagtcatac | |
| atcgcattgc | |
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| tcccactcat | |
| gaacagagtt | |
| tgcttcact | 1200 |
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| gagcggagac | |
| gctctccctc | 1260 |
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| ggtcatcacc | |
| atcacggcca | |
| ctctgaagag | |
| cacgctgaag | 1320 |
| aggaggactc | |
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| tctaaagtgg | |
| gttacatca | 1380 |
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| ctggcagagg | 1560 |
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| aacaaatgcc | 1620 |
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| gcatcatcat | |
| catcacgact | 1680 |
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| caccactccc | |
| agaaccacca | |
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| cacacacaca | 1740 |
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| ttgagcaggc | |
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| acactcgcc | 1800 |
| ggatggcat | |
| catggagac | |
| ggactgcaca | |
| acttcagtga | |
| tggacttgcc | |
| atagggcgg | 1860 |
| ctttcacaga | |
| agtttgcc | |
| agtggctta | |
| gtacctcagt | |
| cgctgtgttc | |
| tgccatgagc | 1920 |
| ttcctcatga | |
| actcggtat | |
| tttgcgtcc | |
| tactgaaagc | |
| cggtatgtca | |
| gttcgacagg | 1980 |
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| taatctgctg | |
| tcagcactga | |
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| ggcatgatc | |
| atcggattc | 2040 |
| tcatcgaca | |
| ttatgctgaa | |
| aatgttgcca | |
| catggatctt | |
| tgctctcaca | |
| gctgggttat | 2100 |
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| gacatggta | |
| ctgagatgct | |
| gcacaatgac | |
| gcgagcgaag | 2160 |
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| tggataactc | |
| ctaggcttcg | 2220 |
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| ccagtggcc | 120 |
| cgtgtggAAC | |
| caaaccctgcg | |
| cgcgtggccg | |
| ggccgtggga | |
| caacgaggcc | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|-------|------------|---------|------|-----|------|------|------|------|----|-----|------|------|------|------|
| gcggagacga | aggcgcaatg | gcgaggaagt | tatctgtaat | cttgatcctg | acctttgcc | 180 | | | | | | | | | | | | | | | | | | | |
| tctctgtcac | aatccctt | catgaactaa | aagcagctgc | tttccccag | accactgaga | 240 | | | | | | | | | | | | | | | | | | | |
| aaatttagtcc | gaattggaa | tctggcatta | atgttgactt | ggcaattcc | acacggcaat | 300 | | | | | | | | | | | | | | | | | | | |
| atcatctaca | acagctttc | taccgctatg | gagaaaataa | ttctttgtca | gttgaagggt | 360 | | | | | | | | | | | | | | | | | | | |
| tcagaaaatt | acttcaaaat | ataggcatag | ataagattaa | aagaatccat | atacaccatg | 420 | | | | | | | | | | | | | | | | | | | |
| accacgacca | tcactcagac | cacgagcatc | actcagacca | tgagcgtcac | tcagaccatg | 480 | | | | | | | | | | | | | | | | | | | |
| agcatca | ctc | agaccacgag | catca | ctg | accataatca | tgctgcttct | 540 | | | | | | | | | | | | | | | | | | |
| agc | aaa | agc | tcttgc | cca | gaccatgact | cagatgttc | aggtaaagat | cctagaaaca | 600 | | | | | | | | | | | | | | | | |
| gc | cc | 660 | | | | | | | | | | | | | | | |
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| ttctagagac | aatagagact | cc | aa | gac | ctg | gaaaact | ctt | ccccaa | agat | gt | taagg | gaca | 780 | | | | | | | | | | | | |
| ccactccacc | cagtgtcaca | tca | aa | agag | cc | gggtgag | cc | g | ctggct | gg | aggaa | acaa | 840 | | | | | | | | | | | | |
| atgaatctgt | gagt | gag | ccc | c | gaaaagg | ct | tatgt | tattc | caga | aa | caca | aatgaaaatc | 900 | | | | | | | | | | | | |
| ctcaggagt | tttca | atg | ca | tca | aa | gact | ac | t | tg | acat | tc | atgg | ttc | 960 | | | | | | | | | | | |
| cgctgaatgc | aa | ca | gag | ttc | aact | at | ctct | gtcc | aggcc | cat | caac | caa | attgatg | 1020 | | | | | | | | | | | |
| gatcttgc | att | cata | ca | ag | aa | agg | ct | gaa | at | ccat | gtt | tt | cat | 1080 | | | | | | | | | | | |
| tacaaatagc | ctgg | gtt | gg | gt | ttt | atag | ccat | tt | ccat | cat | ca | tt | ctgc | 1140 | | | | | | | | | | | |
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| ctcatgcaag | tc | ac | cc | cc | at | ca | cc | at | cc | cc | at | gg | aa | cc | at | gg | aa | 1320 | | | | | | | |
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| cgtggaagg | tct | aa | ca | ac | at | gt | ttt | ccat | ttt | ttt | ttt | ttt | ttt | ttt | ttt | ttt | ttt | 1440 | | | | | | | |
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| aggagaaagt | ag | at | ac | ag | at | gg | at | ttt | ac | g | ac | g | ac | g | ac | g | ac | g | 1620 | | | | | | |
| cctcccactt | tg | at | tct | ca | g | cc | tc | ag | cc | tc | tt | gg | aa | ga | ag | gg | tc | at | gat | ag | ctc | 1680 | | | |
| atgctcatcc | ac | ag | ga | ag | tc | ac | aa | ta | at | gt | ac | cc | ag | gg | tg | ca | ag | a | ataa | at | g | cc | 1740 | | |
| attcacattt | cc | ac | cg | at | ac | ca | cc | ca | gt | cc | ag | ac | gt | ct | at | cc | ac | ca | cc | ac | ca | tc | at | gact | 1800 |

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| accatcatat tctccatcat caccaccacc aaaaccacca tcctcacagt cacagccagc | 1860 |
| gctactctcg ggaggagctg aaagatgccg gcgtgccac tttggcctgg atggtgataa | 1920 |
| tgggtgatgg cctgcacaat ttcagcgatg gcctagcaat tggtgctgct tttactgaag | 1980 |
| gcttatcaag tggtttaagt acttctgttg ctgtgttctg tcatgagttg cctcatgaat | 2040 |
| taggtgactt tgctgttcta ctaaaggctg gcatgaccgt taagcaggct gtcctttata | 2100 |
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Leu Ala Ile Gly Ala Ala Phe Thr Glu Gly Leu Ser Ser Gly Leu Ser
20 25 30

Thr Ser Val Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp
35 40 45

Phe Ala Val Leu Leu Lys Ala Gly Met Thr
50 55

<210> 17
<211> 58
<212> PRT
<213> Homo sapiens

<400> 17

Ala Trp Met Val Ile Met Gly Asp Gly Ile His Asn Phe Ser Asp Gly
1 5 10 15

Leu Ala Ile Gly Ala Ala Phe Ser Ala Gly Leu Thr Gly Gly Ile Ser
20 25 30

Thr Ser Ile Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp
35 40 45

Phe Ala Val Leu Leu Lys Ala Gly Met Thr
50 55

<210> 18

<211> 58
<212> PRT
<213> Homo sapiens

<400> 18

Thr Trp Met Val Leu Leu Gly Asp Gly Leu His Asn Leu Thr Asp Gly
1 5 10 15

Leu Ala Ile Gly Ala Ala Phe Ser Asp Gly Phe Ser Ala Gly Leu Ser
20 25 30

Thr Thr Leu Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp
35 40 45

Phe Ala Met Leu Leu Gln Ser Gly Leu Ser
50 55

<210> 19
<211> 58
<212> PRT
<213> Homo sapiens

<400> 19

Pro Tyr Met Ile Thr Leu Gly Asp Ala Val His Asn Phe Ala Asp Gly
1 5 10 15

Leu Ala Val Gly Ala Ala Phe Ala Ser Ser Trp Lys Thr Gly Leu Ala
20 25 30

Thr Ser Leu Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp
35 40 45

Phe Ala Ala Leu Leu His Ala Gly Leu Ser
50 55

<210> 20
<211> 58
<212> PRT
<213> Homo sapiens

<400> 20

Ala Ile Met Ile Leu Val Gly Asp Ser Leu His Asn Phe Ala Asp Gly
1 5 10 15

Leu Ala Ile Gly Ala Ala Phe Ser Ser Ser Ser Glu Ser Gly Val Thr
20. 25 30

Thr Thr Ile Ala Ile Leu Cys His Glu Ile Pro His Glu Met Gly Asp
35 40 45

Phe Ala Val Leu Leu Ser Ser Gly Leu Ser
50 55

<210> 21
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Ala Trp Met Ile Thr Leu Cys Asp Ala Leu His Asn Phe Ile Asp Gly
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Leu Ala Ile Gly Ala Ser Cys Thr Leu Ser Leu Leu Gln Gly Leu Ser
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Thr Ser Ile Ala Ile Leu Cys Glu Glu Phe Pro His Glu Leu Gly Asp
35 40 45

Phe Val Ile Leu Leu Asn Ala Gly Met Ser
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<210> 22
<211> 58
<212> PRT
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<400> 22

Ala Trp Met Ile Thr Leu Ser Asp Gly Leu His Asn Phe Ile Asp Gly
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Leu Ala Ile Gly Ala Ser Phe Thr Val Ser Val Phe Gln Gly Ile Ser
20 25 30

Thr Ser Val Ala Ile Leu Cys Glu Glu Phe Pro His Glu Leu Gly Asp
35 40 45

Phe Val Ile Leu Leu Asn Ala Gly Met Ser
50 55

<210> 23
<211> 58
<212> PRT
<213> Homo sapiens

<400> 23

Gly Tyr Leu Asn Leu Leu Ala Asn Thr Ile Asp Asn Phe Thr His Gly
1 5 10 15

Leu Ala Val Ala Ala Ser Phe Leu Val Ser Lys Lys Ile Gly Leu Leu
20 25 30

Thr Thr Met Ala Ile Leu Leu His Glu Ile Pro His Glu Val Gly Asp
35 40 45

Phe Ala Ile Leu Val Gln Ser Gly Cys Ser
50 55

<210> 24
<211> 58
<212> PRT
<213> Homo sapiens

<400> 24

Gly Tyr Leu Asn Leu Ala Ala Asp Leu Ala His Asn Phe Thr Asp Gly
1 5 10 15

Leu Ala Ile Gly Ala Ser Phe Arg Gly Arg Gly Leu Gly Ile Leu
20 25 30

Thr Thr Met Thr Val Leu Leu His Glu Val Pro His Glu Val Gly Asp
35 40 45

Phe Ala Ile Leu Leu Arg Ala Gly Phe Asp
50 55

<210> 25
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<222> (56) .. (1465)

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| Glu Pro His Ser His His Thr Leu Glu Gln Pro Gly His Gly His Ser | |
| 195 200 205 | |
| | |
| cac agt ggc cag ggc ccc att ctg tct gtg gga ctg tgg gtt ctc agt | 730 |
| His Ser Gly Gln Gly Pro Ile Leu Ser Val Gly Leu Trp Val Leu Ser | |
| 210 215 220 225 | |
| | |
| gga att gtt gcc ttt ctt gtc gtg gag aaa ttt gtg aga cat gtg aaa | 778 |
| Gly Ile Val Ala Phe Leu Val Val Glu Lys Phe Val Arg His Val Lys | |
| 230 235 240 | |
| | |
| gga gga cat ggt cac agt cat gga cat gga cac gct cac agt cat aca | 826 |
| Gly Gly His Gly His Ser His Gly His Gly His Ala His Ser His Thr | |
| 245 250 255 | |
| | |
| cgt gga agt cat gga cat gga aga caa gag cgt tct acc aag gag aag | 874 |
| Arg Gly Ser His Gly His Arg Gln Glu Arg Ser Thr Lys Glu Lys | |
| 260 265 270 | |
| | |
| cag agc tca gag gaa gaa aag gaa aca aga ggg gtt cag aag agg | 922 |
| Gln Ser Ser Glu Glu Glu Lys Glu Thr Arg Gly Val Gln Lys Arg | |
| 275 280 285 | |
| | |
| cga gga ggg agc aca gta ccc aaa gat ggg cca gtg aga cct cag aac | 970 |
| Arg Gly Gly Ser Thr Val Pro Lys Asp Gly Pro Val Arg Pro Gln Asn | |
| 290 295 300 305 | |
| | |
| gct gaa gaa gaa aaa aga ggc tta gac ctg cgt gtg tcg ggg tac ctg | 1018 |
| Ala Glu Glu Glu Lys Arg Gly Leu Asp Leu Arg Val Ser Gly Tyr Leu | |
| 310 315 320 | |
| | |
| aat ctg gct gct gac ttg gca cac aac ttc act gat ggt ctg gcc att | 1066 |
| Asn Leu Ala Ala Asp Leu Ala His Asn Phe Thr Asp Gly Leu Ala Ile | |
| 325 330 335 | |
| | |
| ggg gct tcc ttt cga ggg ggc cgg gga cta ggg atc ctg acc aca atg | 1114 |
| Gly Ala Ser Phe Arg Gly Gly Arg Gly Leu Gly Ile Leu Thr Thr Met | |
| 340 345 350 | |
| | |
| act gtc ctg cta cat gaa gtg ccc cac gag gtc gga gac ttt gcc atc | 1162 |
| Thr Val Leu Leu His Glu Val Pro His Glu Val Gly Asp Phe Ala Ile | |
| 355 360 365 | |
| | |
| ttg gtc cag tct ggc tgc agc aaa aag cag gcg atg cgt ctg caa cta | 1210 |
| Leu Val Gln Ser Gly Cys Ser Lys Lys Gln Ala Met Arg Leu Gln Leu | |
| 370 375 380 385 | |
| | |
| ctg aca gca gta ggg gca ctg gca ggc aca gcc tgt gcc ctt ctc act | 1258 |
| Leu Thr Ala Val Gly Ala Leu Ala Gly Thr Ala Cys Ala Leu Leu Thr | |
| 390 395 400 | |
| | |
| gaa gga gca gtc ggc agt gaa att gca ggt ggt gca ggt cct ggc | 1306 |
| Glu Gly Gly Ala Val Gly Ser Glu Ile Ala Gly Gly Ala Gly Pro Gly | |
| 405 410 415 | |

| | |
|---|------|
| tgg gtc ctg cca ttt act gca ggt ggc ttt atc tac gta gca aca gtg | 1354 |
| Trp Val Leu Pro Phe Thr Ala Gly Gly Phe Ile Tyr Val Ala Thr Val | |
| 420 425 430 | |
| tct gtg ttg ccc gag ctg ctg agg gag gca tca cca ttg caa tca ctt | 1402 |
| Ser Val Leu Pro Glu Leu Leu Arg Glu Ala Ser Pro Leu Gln Ser Leu | |
| 435 440 445 | |
| ctg gag gtg ctg ggg ctg ctg ggg gga gtt atc atg atg gtg ctg att | 1450 |
| Leu Glu Val Leu Gly Leu Leu Gly Gly Val Ile Met Met Val Leu Ile | |
| 450 455 460 465 | |
| gcc cac ctt gag tga ggggtggata aactaccctt gccccaaacc tctaccctta | 1505 |
| Ala His Leu Glu | |
| actccaggc aggggtgcgt agaggttggg ggccctggcc agggacatct gccaaaggaa | 1565 |
| ggaactgtag cctgggagaa tggttacttt ggcattaggg cttcaaggg ctggcagtct | 1625 |
| tacagaggct ggagcggta gaatgagagg ccagagggac catagtgtg ggcactgtct | 1685 |
| gaccatgttgcatttggaaag gctaaatggg gccatgaaga aggcttggaaag ggacaggggg | 1745 |
| tgtatggcagc ctacctggtg tcccctaccc cacctgttct cggagaacca agttgctaca | 1805 |
| caggaagttc tccaaggc agtttcctt ctcccaccag ttggggagg cttcaggaa | 1865 |
| gaccagagtc ctggacagag agggtaacag gaggagtcgg ggataaacat caaacatcaa | 1925 |
| tcgtgtgtcc tgatttgggaa gtgattgggg ggtatgggtg ggagagggtt agttggatt | 1985 |
| ctcatggcct gatttttttt gtttctattt cttttatatc actgtgtttt aatcgagggg | 2045 |
| gagggggtggtaaccggaaat aaagacctcc gatctccgc cccaaaaaaaaaaaaaaa | 2105 |
| aaaaaa | 2110 |

<210> 26
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<400> 26

Met Ala Arg Gly Leu Gly Ala Pro His Trp Val Ala Val Gly Leu Leu
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 20 25 30

Asp Leu His Asp Asp Leu Gln Glu Asp Phe His Gly His Ser His Arg
 35 40 45

His Ser His Glu Asp Phe His His Gly His Ser His Ala His Gly His
50 55 60

Gly His Thr His Glu Ser Ile Trp His Gly His Thr His Asp His Asp
65 70 75 80

His Gly His Ser His Glu Asp Leu His His Gly His Ser His Gly Tyr
85 90 95

Ser His Glu Ser Leu Tyr His Arg Gly His Gly His Asp His Glu His
100 105 110

Ser His Gly Gly Tyr Gly Glu Ser Gly Ala Pro Gly Ile Lys Gln Asp
115 120 125

Leu Asp Ala Val Thr Leu Trp Ala Tyr Ala Leu Gly Ala Thr Val Leu
130 135 140

Ile Ser Ala Ala Pro Phe Phe Val Leu Phe Leu Ile Pro Val Glu Ser
145 150 155 160

Asn Ser Pro Arg His Arg Ser Leu Leu Gln Ile Leu Leu Ser Phe Ala
165 170 175

Ser Gly Gly Leu Leu Gly Asp Ala Phe Leu His Leu Ile Pro His Ala
180 185 190

Leu Glu Pro His Ser His Thr Leu Glu Gln Pro Gly His Gly His
195 200 205

Ser His Ser Gly Gln Gly Pro Ile Leu Ser Val Gly Leu Trp Val Leu
210 215 220

Ser Gly Ile Val Ala Phe Leu Val Val Glu Lys Phe Val Arg His Val
225 230 235 240

Lys Gly Gly His Gly His Ser His Gly His Gly His Ala His Ser His
245 250 255

Thr Arg Gly Ser His Gly His Gly Arg Gln Glu Arg Ser Thr Lys Glu
260 265 270

Lys Gln Ser Ser Glu Glu Glu Lys Glu Thr Arg Gly Val Gln Lys
275 280 285

Arg Arg Gly Gly Ser Thr Val Pro Lys Asp Gly Pro Val Arg Pro Gln
290 295 300

Asn Ala Glu Glu Glu Lys Arg Gly Leu Asp Leu Arg Val Ser Gly Tyr
305 310 315 320

Leu Asn Leu Ala Ala Asp Leu Ala His Asn Phe Thr Asp Gly Leu Ala
325 330 335

Ile Gly Ala Ser Phe Arg Gly Gly Arg Gly Leu Gly Ile Leu Thr Thr
340 345 350

Met Thr Val Leu Leu His Glu Val Pro His Glu Val Gly Asp Phe Ala
355 360 365

Ile Leu Val Gln Ser Gly Cys Ser Lys Lys Gln Ala Met Arg Leu Gln
370 375 380

Leu Leu Thr Ala Val Gly Ala Leu Ala Gly Thr Ala Cys Ala Leu Leu
385 390 395 400

Thr Glu Gly Gly Ala Val Gly Ser Glu Ile Ala Gly Gly Ala Gly Pro
405 410 415

Gly Trp Val Leu Pro Phe Thr Ala Gly Gly Phe Ile Tyr Val Ala Thr
420 425 430

Val Ser Val Leu Pro Glu Leu Leu Arg Glu Ala Ser Pro Leu Gln Ser
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Leu Leu Glu Val Leu Gly Leu Leu Gly Gly Val Ile Met Met Val Leu
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Ile Ala His Leu Glu
465

<210> 27
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| His Asp His Asn His Arg Leu Arg His His His Arg Leu His His His | |
| 175 180 185 | |
| ctt gat cat aac aac act cac cat ttt cat aat gat tcc att act ccc | 687 |
| Leu Asp His Asn Asn Thr His His Phe His Asn Asp Ser Ile Thr Pro | |
| 190 195 200 | |
| agt gag cgt ggg gag cct agc aat gaa cct tca aca gag acc aat aaa | 735 |
| Ser Glu Arg Gly Glu Pro Ser Asn Glu Pro Ser Thr Glu Thr Asn Lys | |
| 205 210 215 | |
| acc cag gaa caa tct gat gtt aaa cta ccg aaa gga aag agg aag aaa | 783 |
| Thr Gln Glu Gln Ser Asp Val Lys Leu Pro Lys Gly Lys Arg Lys Lys | |
| 220 225 230 235 | |
| aaa ggg agg aaa agt aat gaa aat tct gag gtt att aca cca ggt ttt | 831 |
| Lys Gly Arg Lys Ser Asn Glu Asn Ser Glu Val Ile Thr Pro Gly Phe | |
| 240 245 250 | |
| ccc cct aac cat gat cag ggt gaa cag tat gag cat aat ccg gtc cac | 879 |
| Pro Pro Asn His Asp Gln Gly Glu Gln Tyr Glu His Asn Arg Val His | |
| 255 260 265 | |
| aaa cct gat cgt gta cat aac cca ggt cat tct cat gta cat ctt cca | 927 |
| Lys Pro Asp Arg Val His Asn Pro Gly His Ser His Val His Leu Pro | |
| 270 275 280 | |
| gaa cgt aat ggt cat gat cct ggt cgt gga cac caa gat ctt gat cct | 975 |
| Glu Arg Asn Gly His Asp Pro Gly Arg Gly His Gln Asp Leu Asp Pro | |
| 285 290 295 | |
| gat aat gaa ggt gaa ctt cga cat act aga aag aga gaa gca cca cat | 1023 |
| Asp Asn Glu Gly Glu Leu Arg His Thr Arg Lys Arg Glu Ala Pro His | |
| 300 305 310 315 | |
| gtt aaa aat aat gca ata att tct ttg aga aaa gat cta aat gaa gat | 1071 |
| Val Lys Asn Asn Ala Ile Ser Leu Arg Lys Asp Leu Asn Glu Asp | |
| 320 325 330 | |
| gac cat cat cat gaa tgt ttg aac gtc act cag tta tta aaa tac tat | 1119 |
| Asp His His Glu Cys Leu Asn Val Thr Gln Leu Leu Lys Tyr Tyr | |
| 335 340 345 | |
| ggt cat ggt gcc aac tct ccc atc tca act gat tta ttt aca tac ctt | 1167 |
| Gly His Gly Ala Asn Ser Pro Ile Ser Thr Asp Leu Phe Thr Tyr Leu | |
| 350 355 360 | |
| tgc cct gca ttg tta tat caa atc gac agc aga ctt tgt att gag cat | 1215 |
| Cys Pro Ala Leu Leu Tyr Gln Ile Asp Ser Arg Leu Cys Ile Glu His | |
| 365 370 375 | |
| ttt gac aaa ctt tta gtt gaa gat ata aat aag gat aaa aac ctg gtt | 1263 |
| Phe Asp Lys Leu Leu Val Glu Asp Ile Asn Lys Asp Lys Asn Leu Val | |
| 380 385 390 395 | |

| | |
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| cct gaa gat gag gca aat ata ggg gca tca gcc tgg att tgt ggt atc Pro Glu Asp Glu Ala Asn Ile Gly Ala Ser Ala Trp Ile Cys Gly Ile 400 405 410 | 1311 |
| att tct atc act gtc att agc ctg ctt tcc ttg cta ggc gtg atc ttg Ile Ser Ile Thr Val Ile Ser Leu Leu Ser Leu Leu Gly Val Ile Leu 415 420 425 | 1359 |
| gtt cct atc att aac caa gga tgc ttc aaa ttc ctt ctt aca ttc ctt Val Pro Ile Ile Asn Gln Gly Cys Phe Lys Phe Leu Leu Thr Phe Leu 430 435 440 | 1407 |
| gtt gca tta gct gta gga aca atg agt gga gac gcc ctt ctt cat cta Val Ala Leu Ala Val Gly Thr Met Ser Gly Asp Ala Leu Leu His Leu 445 450 455 | 1455 |
| ctg ccc cat tct cag ggt gga cat gat cac agt cac caa cat gca cat Leu Pro His Ser Gln Gly His Asp His Ser His Gln His Ala His 460 465 470 475 | 1503 |
| ggg cat gga cat tct cat gga cat gaa tct aac aag ttt ttg gaa gaa Gly His Gly His Ser His Gly His Glu Ser Asn Lys Phe Leu Glu Glu 480 485 490 | 1551 |
| tat gat gct gta ttg aaa gga ctt gtt gct cta gga ggc att tac ttg Tyr Asp Ala Val Lys Gly Leu Val Ala Leu Gly Gly Ile Tyr Leu 495 500 505 | 1599 |
| cta ttt atc att gaa cac tgc att aga atg ttt aag cac tac aaa caa Leu Phe Ile Ile Glu His Cys Ile Arg Met Phe Lys His Tyr Lys Gln 510 515 520 | 1647 |
| caa aga gga aaa cag aaa tgg ttt atg aaa cag aac aca gaa gaa tca Gln Arg Gly Lys Gln Lys Trp Phe Met Lys Gln Asn Thr Glu Glu Ser 525 530 535 | 1695 |
| act att gga aga aag ctt tca gat cac aag tta aac aat aca cca gat Thr Ile Gly Arg Lys Leu Ser Asp His Lys Leu Asn Asn Thr Pro Asp 540 545 550 555 | 1743 |
| tct gac tgg ctt caa ctc aag cct ctt gcc gga act gat gac tcg gtt Ser Asp Trp Leu Gln Leu Lys Pro Leu Ala Gly Thr Asp Asp Ser Val 560 565 570 | 1791 |
| gtt tct gaa gat cga ctt aat gaa act gaa ctg aca gat tta gaa ggc Val Ser Glu Asp Arg Leu Asn Glu Thr Glu Leu Thr Asp Leu Glu Gly 575 580 585 | 1839 |
| caa caa gaa tcc cct aaa aat tac ctt tgt ata gaa gag gag aaa Gln Gln Glu Ser Pro Pro Lys Asn Tyr Leu Cys Ile Glu Glu Glu Lys 590 595 600 | 1887 |
| atc ata gac cat tct cac agt gat gga tta cat acc att cat gag cat Ile Ile Asp His Ser His Ser Asp Gly Leu His Thr Ile His Glu His 605 610 615 | 1935 |

| | |
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| gat ctc cat gct gca cat aac cac cac ggc gag aac aaa act gtg Asp Leu His Ala Ala His Asn His His Gly Glu Asn Lys Thr Val 620 625 630 635 | 1983 |
| ctg agg aag cat aat cac cag tgg cac cac aag cat tct cat cat tcc Leu Arg Lys His Asn His Gln Trp His His Lys His Ser His His Ser 640 645 650 | 2031 |
| cat ggc ccc tgt cat tct gga tcc gat ctg aaa gaa aca gga ata gct His Gly Pro Cys His Ser Gly Ser Asp Leu Lys Glu Thr Gly Ile Ala 655 660 665 | 2079 |
| aat ata gcc tgg atg gtg atc atg ggg gat ggc atc cac aac ttc agt Asn Ile Ala Trp Met Val Ile Met Gly Asp Gly Ile His Asn Phe Ser 670 675 680 | 2127 |
| gat ggg ctc gca att ggt gca gct ttc agt gct gga ttg aca gga gga Asp Gly Leu Ala Ile Gly Ala Ala Phe Ser Ala Gly Leu Thr Gly Gly 685 690 695 | 2175 |
| atc agt act tct ata gcc gtc ttc tgt cat gaa ctg cca cat gaa tta Ile Ser Thr Ser Ile Ala Val Phe Cys His Glu Leu Pro His Glu Leu 700 705 710 715 | 2223 |
| gga gat ttt gca gtt ctt ctt aaa gca ggc atg act gta aag caa gca Gly Asp Phe Ala Val Leu Leu Lys Ala Gly Met Thr Val Lys Gln Ala 720 725 730 | 2271 |
| att gta tac aac ctc ctc tct gcc atg atg gct tac ata ggc atg ctc Ile Val Tyr Asn Leu Leu Ser Ala Met Met Ala Tyr Ile Gly Met Leu 735 740 745 | 2319 |
| ata ggc aca gct gtt ggt cag tat gcc aat aac atc aca ctt tgg atc Ile Gly Thr Ala Val Gly Gln Tyr Ala Asn Asn Ile Thr Leu Trp Ile 750 755 760 | 2367 |
| ttt gca gtc act gca ggc atg ttc ctc tat gta gcc ttg gtg gat atg Phe Ala Val Thr Ala Gly Met Phe Leu Tyr Val Ala Leu Val Asp Met 765 770 775 | 2415 |
| ctt cca gaa atg ttg cat ggt gat ggt gac aat gaa gaa cat ggc ttt Leu Pro Glu Met Leu His Gly Asp Gly Asp Asn Glu Glu His Gly Phe 780 785 790 795 | 2463 |
| tgt cct gtg ggg caa ttc atc ctt cag aat tta gga ttg ctc ttt gga Cys Pro Val Gly Gln Phe Ile Leu Gln Asn Leu Gly Leu Leu Phe Gly 800 805 810 | 2511 |
| ttt gcc att atg ctg gtg att gcc ctc tat gaa gat aaa att gtg ttt Phe Ala Ile Met Leu Val Ile Ala Leu Tyr Glu Asp Lys Ile Val Phe 815 820 825 | 2559 |
| gac atc cag ttt tga cctttccag taatcactgt tgattacgag aatgttacca Asp Ile Gln Phe 830 | 2614 |

| | | |
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| tgca | gctttg catctgttcc ttgtactgta tgcacattgc tcaaaggaaa gtcagtggct | 2674 |
| tgca | ctactt acaagttca tagattttag cctaaccaca agaggctggt gcttagtact | 2734 |
| gtttccctg | cacgttaggg tctttaaaaa atataaagct tgtgataaag agaggagaat | 2794 |
| atgggactcc | atgaaccagt gttgatatgt ttgattaaga ctttcacaa aataatcata | 2854 |
| taaaacacta | gtctcttat tagtagaaac ttctgtggct atgcagaaat agagatcgaa | 2914 |
| ccaaaaaaaaa | tcatttaaac tttaaaaata tttaaatgg actttgggaa gacattttt | 2974 |
| gtgtgtttta | agaatgaatt gtagtgctct ttaattcagc tacatatatt catgtggta | 3034 |
| taggatcaa | cttgacacaa cttgaaact gcataaagta gacataggaa ctagaggaaa | 3094 |
| gctcaggctg | cattagagta tgaatttagc attggaaaaa gcccttattc ttgaatctag | 3154 |
| agttactatt | tttgcatagt gttaaacct gcagcctaaa ctactgaaat | 3214 |
| ttgtgattgt | atgtttgtgt gagttcagt ttaatgaaag attcataatg gttctttgt | 3274 |
| ttattataat | acttggtggtt ggggtgttct ttctgttttgg tttttactt taattttgtt | 3334 |
| ttgatttttt | tttttttttt ttggcgggg gtaggtgagg gttggagca tgtggcttt | 3394 |
| ttaaaaaatt | gtaaccctct agaaaatatc aaagaaatga accagacgtg gttaaatag | 3454 |
| ttgattttcc | tattttaaca gtaccaacta gttattggg aaatgtaagt tctgaatgtt | 3514 |
| cacattgctt | taccagtttgcactggAAC caagagcaca tgctgtggct ggctacaagg | 3574 |
| ttgtaaagca | gaaaatcgaa gttaccatg tctgtaatgt gtacatgaag tgtcaatttta | 3634 |
| gaacagttac | taggataaac tccattatttgc ccatggctgt catggtaccc aagtgacttg | 3694 |
| gaagatgcat | ttaaattact cagctgaaat cacttgatca tcttgcacca agatatgctg | 3754 |
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| atttgtgaga | agtgcagcc atgttatcc tgaattttta cttaataatt tgtattacta | 3874 |
| gtcatatgca | tgttagcttc tgtttacatc ctatgccaca tggctttcat ttatgccagg | 3934 |
| taaactgtat | ttgaactatg tgctgttagt tttgtttaa tctgcttggc aaccagtgt | 3994 |
| gctgctgtaa | caatctatct tattgttcaa atatataaga gccaaactct tttccattcc | 4054 |
| atctaaaatg | ttttcatttta gtactcttct ttcctcctac tctatgaact tcaaaacaaa | 4114 |
| aacaaaactt | tgagagcagc acatgcattcc aggtatttt agattattgc cagtgtctt | 4174 |
| tctgtatgct | ataagcaagg gagcttaggt gttatttctt taatttatgc ttgaatctga | 4234 |
| aaaatttattt | ctgacttact ccatggcctc cttataataa gtagaagttt tatatataat | 4294 |

| | |
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| taatttcag cattggcac tgaatttgc cagtcctcat ctcattgctt ggcccttcaa | 4354 |
| gcaacctagc taaaagggtgc tgatatttta ttttagtactg ccaacttcaa gtgatttgc | 4414 |
| tatctatcta tctagatttc tgaaccaaga tatattata gttcactttt gggttttat | 4474 |
| acccacggta ggattctgca ttccagcatt aaatctgctt cattttagaa cctttataaaa | 4534 |
| agcaatagct ggaatataact cccagttta aaataaatgc ctgattgatt taaagcaagt | 4594 |
| aggttatgct gaagtatata aagaagttt atattctctc aaaaatggta ttatcttct | 4654 |
| ttatggctta gattcttaca aatctttaa gagggctgta acagttgctg ctagtattag | 4714 |
| ggttccacat cattctaattg tatagtttca agtcttaata gacaatctga attccactac | 4774 |
| atttctttg gctccaacat tccttttagc ttgaccagtc taatttaaaa tgtgtttgtt | 4834 |
| ggaggtcatt aacgttactt gtacaatgct gtcactgtgt gacatccata tgaattttgg | 4894 |
| tatatatcaa tcaatcaatc aatcacattt cattcaatca atcagctgtg attgattgat | 4954 |
| tatgcttaga aatactatag taactagatg cagtgtgaat ttttccatt aacaaacaaa | 5014 |
| caaacaagtc agtggcttaa atgtgattat ggtcctgcaa ggtgattctt gctaaaatat | 5074 |
| ctaaactttt gttttgtttt aactgaatca ttttttaact taaaaagctg gaaaatatca | 5134 |
| aatgctgttt tttttttca ttgtcaacag tggtgtgtca ttttatgtat gttcctaattg | 5194 |
| cttatggAAC tcctccaaaa taaagttact caaagag | 5231 |

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Phe Ile Phe His His Cys Asn His Cys His Glu Glu His Asp His Gly
 20 25 30

Pro Glu Ala Leu His Arg Gln His Arg Gly Met Thr Glu Leu Glu Pro
 35 40 45

Ser Lys Phe Ser Lys Gln Ala Ala Glu Asn Glu Lys Lys Tyr Tyr Ile
 50 55 60

Glu Lys Leu Phe Glu Arg Tyr Gly Glu Asn Gly Arg Leu Ser Phe Phe
65 70 75 80

Gly Leu Glu Lys Leu Leu Thr Asn Leu Gly Leu Gly Glu Arg Lys Val
85 90 95

Val Glu Ile Asn His Glu Asp Leu Gly His Asp His Val Ser His Leu
100 105 110

Asp Ile Leu Ala Val Gln Glu Gly Lys His Phe His Ser His Asn His
115 120 125

Gln His Ser His Asn His Leu Asn Ser Glu Asn Gln Thr Val Thr Ser
130 135 140

Val Ser Thr Lys Arg Asn His Lys Cys Asp Pro Glu Lys Glu Thr Val
145 150 155 160

Glu Val Ser Val Lys Ser Asp Asp Lys His Met His Asp His Asn His
165 170 175

Arg Leu Arg His His His Arg Leu His His His Leu Asp His Asn Asn
180 185 190

Thr His His Phe His Asn Asp Ser Ile Thr Pro Ser Glu Arg Gly Glu
195 200 205

Pro Ser Asn Glu Pro Ser Thr Glu Thr Asn Lys Thr Gln Glu Gln Ser
210 215 220

Asp Val Lys Leu Pro Lys Gly Lys Arg Lys Lys Lys Gly Arg Lys Ser
225 230 235 240

Asn Glu Asn Ser Glu Val Ile Thr Pro Gly Phe Pro Pro Asn His Asp
245 250 255

Gln Gly Glu Gln Tyr Glu His Asn Arg Val His Lys Pro Asp Arg Val
260 265 270

His Asn Pro Gly His Ser His Val His Leu Pro Glu Arg Asn Gly His
275 280 285

Asp Pro Gly Arg Gly His Gln Asp Leu Asp Pro Asp Asn Glu Gly Glu
290 295 300

Leu Arg His Thr Arg Lys Arg Glu Ala Pro His Val Lys Asn Asn Ala
305 310 315 320

Ile Ile Ser Leu Arg Lys Asp Leu Asn Glu Asp Asp His His His Glu
325 330 335

Cys Leu Asn Val Thr Gln Leu Leu Lys Tyr Tyr Gly His Gly Ala Asn
340 345 350

Ser Pro Ile Ser Thr Asp Leu Phe Thr Tyr Leu Cys Pro Ala Leu Leu
355 360 365

Tyr Gln Ile Asp Ser Arg Leu Cys Ile Glu His Phe Asp Lys Leu Leu
370 375 380

Val Glu Asp Ile Asn Lys Asp Lys Asn Leu Val Pro Glu Asp Glu Ala
385 390 395 400

Asn Ile Gly Ala Ser Ala Trp Ile Cys Gly Ile Ile Ser Ile Thr Val
405 410 415

Ile Ser Leu Leu Ser Leu Leu Gly Val Ile Leu Val Pro Ile Ile Asn
420 425 430

Gln Gly Cys Phe Lys Phe Leu Leu Thr Phe Leu Val Ala Leu Ala Val
435 440 445

Gly Thr Met Ser Gly Asp Ala Leu Leu His Leu Leu Pro His Ser Gln
450 455 460

Gly Gly His Asp His Ser His Gln His Ala His Gly His Gly His Ser
465 470 475 480

His Gly His Glu Ser Asn Lys Phe Leu Glu Glu Tyr Asp Ala Val Leu
485 490 495

Lys Gly Leu Val Ala Leu Gly Gly Ile Tyr Leu Leu Phe Ile Ile Glu
500 505 510

His Cys Ile Arg Met Phe Lys His Tyr Lys Gln Gln Arg Gly Lys Gln
515 520 525

Lys Trp Phe Met Lys Gln Asn Thr Glu Glu Ser Thr Ile Gly Arg Lys
530 535 540

Leu Ser Asp His Lys Leu Asn Asn Thr Pro Asp Ser Asp Trp Leu Gln
545 550 555 560

Leu Lys Pro Leu Ala Gly Thr Asp Asp Ser Val Val Ser Glu Asp Arg
565 570 575

Leu Asn Glu Thr Glu Leu Thr Asp Leu Glu Gly Gln Gln Glu Ser Pro
580 585 590

Pro Lys Asn Tyr Leu Cys Ile Glu Glu Glu Lys Ile Ile Asp His Ser
595 600 605

His Ser Asp Gly Leu His Thr Ile His Glu His Asp Leu His Ala Ala
610 615 620

Ala His Asn His His Gly Glu Asn Lys Thr Val Leu Arg Lys His Asn
625 630 635 640

His Gln Trp His His Lys His Ser His His Ser His Gly Pro Cys His
645 650 655

Ser Gly Ser Asp Leu Lys Glu Thr Gly Ile Ala Asn Ile Ala Trp Met
660 665 670

Val Ile Met Gly Asp Gly Ile His Asn Phe Ser Asp Gly Leu Ala Ile
675 680 685

Gly Ala Ala Phe Ser Ala Gly Leu Thr Gly Gly Ile Ser Thr Ser Ile
690 695 700

Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp Phe Ala Val
705 710 715 720

Leu Leu Lys Ala Gly Met Thr Val Lys Gln Ala Ile Val Tyr Asn Leu
725 730 735

Leu Ser Ala Met Met Ala Tyr Ile Gly Met Leu Ile Gly Thr Ala Val
 740 745 750

Gly Gln Tyr Ala Asn Asn Ile Thr Leu Trp Ile Phe Ala Val Thr Ala
 755 760 765

Gly Met Phe Leu Tyr Val Ala Leu Val Asp Met Leu Pro Glu Met Leu
 770 775 780

His Gly Asp Gly Asp Asn Glu Glu His Gly Phe Cys Pro Val Gly Gln
 785 790 795 800

Phe Ile Leu Gln Asn Leu Gly Leu Leu Phe Gly Phe Ala Ile Met Leu
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Val Ile Ala Leu Tyr Glu Asp Lys Ile Val Phe Asp Ile Gln Phe
 820 825 830

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ccagtgggcc cgtgtggAAC caaacctgcg cgccgtggccg ggccgtggGA caacgaggcc 120

gcggagacga aggCGCA atg GCG agg aag tta tct gta atc ttg atc ctg 170
 Met Ala Arg Lys Leu Ser Val Ile Leu Ile Leu
 1 5 10

acc ttt gcc ctc tct gtc aca aat ccc ctt cat gaa cta aaa gca gct 218
 Thr Phe Ala Leu Ser Val Thr Asn Pro Leu His Glu Leu Lys Ala Ala
 15 20 25

gct ttc ccc cag acc act gag aaa att agt ccg aat tgg gaa tct ggc 266
 Ala Phe Pro Gln Thr Thr Glu Lys Ile Ser Pro Asn Trp Glu Ser Gly
 30 35 40

att aat gtt gac ttg gca att tcc aca cgg caa tat cat cta caa cag 314
 Ile Asn Val Asp Leu Ala Ile Ser Thr Arg Gln Tyr His Leu Gln Gln
 45 50 55

| | |
|---|-----|
| ctt ttc tac cgc tat gga gaa aat aat tct ttg tca gtt gaa ggg ttc | 362 |
| Leu Phe Tyr Arg Tyr Gly Glu Asn Asn Ser Leu Ser Val Glu Gly Phe | |
| 60 65 70 75 | |
| aga aaa tta ctt caa aat ata ggc ata gat aag att aaa aga atc cat | 410 |
| Arg Lys Leu Leu Gln Asn Ile Gly Ile Asp Lys Ile Lys Arg Ile His | |
| 80 85 90 | |
| ata cac cat gac cac cat cac tca gac cac gag cat cac tca gac | 458 |
| Ile His His Asp His Asp His Ser Asp His Glu His His Ser Asp | |
| 95 100 105 | |
| cat gag cgt cac tca gac cat gag cat cac tca gac cac gag cat cac | 506 |
| His Glu Arg His Ser Asp His Glu His His Ser Asp His Glu His His | |
| 110 115 120 | |
| tct gac cat aat cat gct gct tct ggt aaa aat aag cga aaa gct ctt | 554 |
| Ser Asp His Asn His Ala Ala Ser Gly Lys Asn Lys Arg Lys Ala Leu | |
| 125 130 135 | |
| tgc cca gac cat gac tca gat agt tca ggt aaa gat cct aga aac agc | 602 |
| Cys Pro Asp His Asp Ser Asp Ser Gly Lys Asp Pro Arg Asn Ser | |
| 140 145 150 155 | |
| cag ggg aaa gga gct cac cga cca gaa cat gcc agt ggt aga agg aat | 650 |
| Gln Gly Lys Gly Ala His Arg Pro Glu His Ala Ser Gly Arg Arg Asn | |
| 160 165 170 | |
| gtc aag gac agt gtt agt gct agt gaa gtg acc tca act gtg tac aac | 698 |
| Val Lys Asp Ser Val Ser Ala Ser Glu Val Thr Ser Thr Val Tyr Asn | |
| 175 180 185 | |
| act gtc tct gaa gga act cac ttt cta gag aca ata gag act cca aga | 746 |
| Thr Val Ser Glu Gly Thr His Phe Leu Glu Thr Ile Glu Thr Pro Arg | |
| 190 195 200 | |
| cct gga aaa ctc ttc ccc aaa gat gta agc agc tcc act cca ccc agt | 794 |
| Pro Gly Lys Leu Phe Pro Lys Asp Val Ser Ser Thr Pro Pro Ser | |
| 205 210 215 | |
| gtc aca tca aag agc cgg gtg agc cgg ctg gct ggt agg aaa aca aat | 842 |
| Val Thr Ser Lys Ser Arg Val Ser Arg Leu Ala Gly Arg Lys Thr Asn | |
| 220 225 230 235 | |
| gaa tct gtg agt gag ccc cga aaa ggc ttt atg tat tcc aga aac aca | 890 |
| Glu Ser Val Ser Glu Pro Arg Lys Gly Phe Met Tyr Ser Arg Asn Thr | |
| 240 245 250 | |
| aat gaa aat cct cag gag tgt ttc aat gca tca aag cta ctg aca tct | 938 |
| Asn Glu Asn Pro Gln Glu Cys Phe Asn Ala Ser Lys Leu Leu Thr Ser | |
| 255 260 265 | |
| cat ggc atg ggc atc cag gtt ccg ctg aat gca aca gag ttc aac tat | 986 |
| His Gly Met Gly Ile Gln Val Pro Leu Asn Ala Thr Glu Phe Asn Tyr | |
| 270 275 280 | |

| | |
|---|------|
| ctc tgt cca gcc atc atc aac caa att gat gct aga tct tgt ctg att | 1034 |
| Leu Cys Pro Ala Ile Ile Asn Gln Ile Asp Ala Arg Ser Cys Leu Ile | |
| 285 290 295 | |
| cat aca agt gaa aag aag gct gaa atc cct cca aag acc tat tca tta | 1082 |
| His Thr Ser Glu Lys Lys Ala Glu Ile Pro Pro Lys Thr Tyr Ser Leu | |
| 300 305 310 315 | |
| caa ata gcc tgg gtt ggt ttt ata gcc att tcc atc atc agt ttc | 1130 |
| Gln Ile Ala Trp Val Gly Gly Phe Ile Ala Ile Ser Ile Ile Ser Phe | |
| 320 325 330 | |
| ctg tct ctg ctg ggg gtt atc tta gtg cct ctc atg aat cgg gtg ttt | 1178 |
| Leu Ser Leu Leu Gly Val Ile Leu Val Pro Leu Met Asn Arg Val Phe | |
| 335 340 345 | |
| ttc aaa ttt ctc ctg agt ttc ctt gtg gca ctg gcc gtt ggg act ttg | 1226 |
| Phe Lys Phe Leu Leu Ser Phe Leu Val Ala Leu Ala Val Gly Thr Leu | |
| 350 355 360 | |
| agt ggt gat gct ttt tta cac ctt ctt cca cat tct cat gca agt cac | 1274 |
| Ser Gly Asp Ala Phe Leu His Leu Leu Pro His Ser His Ala Ser His | |
| 365 370 375 | |
| cac cat agt cat agc cat gaa gaa cca gca atg gaa atg aaa aga gga | 1322 |
| His His Ser His His Glu Glu Pro Ala Met Glu Met Lys Arg Gly | |
| 380 385 390 395 | |
| cca ctt ttc agt cat ctg tct tct caa aac ata gaa gaa agt gcc tat | 1370 |
| Pro Leu Phe Ser His Leu Ser Ser Gln Asn Ile Glu Glu Ser Ala Tyr | |
| 400 405 410 | |
| ttt gat tcc acg tgg aag ggt cta aca gct cta gga ggc ctg tat ttc | 1418 |
| Phe Asp Ser Thr Trp Lys Gly Leu Thr Ala Leu Gly Gly Leu Tyr Phe | |
| 415 420 425 | |
| atg ttt ctt gtt gaa cat gtc ctc aca ttg atc aaa caa ttt aaa gat | 1466 |
| Met Phe Leu Val Glu His Val Leu Thr Leu Ile Lys Gln Phe Lys Asp | |
| 430 435 440 | |
| aag aag aaa aag aat cag aag aaa cct gaa aat gat gat gat gtg gag | 1514 |
| Lys Lys Lys Asn Gln Lys Lys Pro Glu Asn Asp Asp Asp Val Glu | |
| 445 450 455 | |
| att aag aag cag ttg tcc aag tat gaa tct caa ctt tca aca aat gag | 1562 |
| Ile Lys Lys Gln Leu Ser Lys Tyr Glu Ser Gln Leu Ser Thr Asn Glu | |
| 460 465 470 475 | |
| gag aaa gta gat aca gat gat cga act gaa ggc tat tta cga gca gac | 1610 |
| Glu Lys Val Asp Thr Asp Asp Arg Thr Glu Gly Tyr Leu Arg Ala Asp | |
| 480 485 490 | |
| tca caa gag ccc tcc cac ttt gat tct cag cag cct gca gtc ttg gaa | 1658 |
| Ser Gln Glu Pro Ser His Phe Asp Ser Gln Gln Pro Ala Val Leu Glu | |
| 495 500 505 | |

| | |
|---|------|
| gaa gaa gag gtc atg ata gct cat gct cat cca cag gaa gtc tac aat | 1706 |
| Glu Glu Glu Val Met Ile Ala His Ala His Pro Gln Glu Val Tyr Asn | |
| 510 515 520 | |
| gaa tat gta ccc aga ggg tgc aag aat aaa tgc cat tca cat ttc cac | 1754 |
| Glu Tyr Val Pro Arg Gly Cys Lys Asn Lys Cys His Ser His Phe His | |
| 525 530 535 | |
| gat aca ctc ggc cag tca gac gat ctc att cac cac cat cat gac tac | 1802 |
| Asp Thr Leu Gly Gln Ser Asp Asp Leu Ile His His His Asp Tyr | |
| 540 545 550 555 | |
| cat cat att ctc cat cat cac cac caa aac cac cat cct cac agt | 1850 |
| His His Ile Leu His His His His Gln Asn His His Pro His Ser | |
| 560 565 570 | |
| cac agc cag cgc tac tct cgg gag gag ctg aaa gat gcc ggc gtc gcc | 1898 |
| His Ser Gln Arg Tyr Ser Arg Glu Glu Leu Lys Asp Ala Gly Val Ala | |
| 575 580 585 | |
| act ttg gcc tgg atg gtg ata atg ggt gat ggc ctg cac aat ttc agc | 1946 |
| Thr Leu Ala Trp Met Val Ile Met Gly Asp Gly Leu His Asn Phe Ser | |
| 590 595 600 | |
| gat ggc cta gca att ggt gct gct ttt act gaa ggc tta tca agt ggt | 1994 |
| Asp Gly Leu Ala Ile Gly Ala Ala Phe Thr Glu Gly Leu Ser Ser Gly | |
| 605 610 615 | |
| tta agt act tct gtt gct gtg ttc tgt cat gag ttg cct cat gaa tta | 2042 |
| Leu Ser Thr Ser Val Ala Val Phe Cys His Glu Leu Pro His Glu Leu | |
| 620 625 630 635 | |
| ggt gac ttt gct gtt cta cta aag gct ggc atg acc gtt aag cag gct | 2090 |
| Gly Asp Phe Ala Val Leu Leu Lys Ala Gly Met Thr Val Lys Gln Ala | |
| 640 645 650 | |
| gtc ctt tat aat gca ttg tca gcc atg ctg gcg tat ctt gga atg gca | 2138 |
| Val Leu Tyr Asn Ala Leu Ser Ala Met Leu Ala Tyr Leu Gly Met Ala | |
| 655 660 665 | |
| aca gga att ttc att ggt cat tat gct gaa aat gtt tct atg tgg ata | 2186 |
| Thr Gly Ile Phe Ile Gly His Tyr Ala Glu Asn Val Ser Met Trp Ile | |
| 670 675 680 | |
| ttt gca ctt act gct ggc tta ttc atg tat gtt gct ctg gtt gat atg | 2234 |
| Phe Ala Leu Thr Ala Gly Leu Phe Met Tyr Val Ala Leu Val Asp Met | |
| 685 690 695 | |
| gta cct gaa atg ctg cac aat gat gct agt gac cat gga tgt agc cgc | 2282 |
| Val Pro Glu Met Leu His Asn Asp Ala Ser Asp His Gly Cys Ser Arg | |
| 700 705 710 715 | |
| tgg ggg tat ttc ttt tta cag aat gct ggg atg ctt ttg ggt ttt gga | 2330 |
| Trp Gly Tyr Phe Phe Leu Gln Asn Ala Gly Met Leu Leu Gly Phe Gly | |
| 720 725 730 | |

att atg tta ctt att tcc ata ttt gaa cat aaa atc gtg ttt cgt ata 2378
 Ile Met Leu Leu Ile Ser Ile Phe Glu His Lys Ile Val Phe Arg Ile
 735 740 745

aat ttc tag ttaaggtaa aatgcttagag tagctaaaa agttgtcata 2427
 Asn Phe

gtttcagtag gtcatagggta gatgagttt gatgctgtac tatgcagcgt ttaaagttag 2487
 tgggtttgt gatTTTgttta ttgaatattt ctgtctgtta caaagtcaat taaaggtacg 2547
 ttttaatatt taagttattt tatcttggag ataaaatctg tatgtgcaat tcaccgtat 2607
 taccagttta ttatgtaaac aagagattt gcatgacatg ttctgtatgt ttcagggaaa 2667
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Met Ala Arg Lys Leu Ser Val Ile Leu Ile Leu Thr Phe Ala Leu Ser
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Val Thr Asn Pro Leu His Glu Leu Lys Ala Ala Ala Phe Pro Gln Thr
 20 25 30

Thr Glu Lys Ile Ser Pro Asn Trp Glu Ser Gly Ile Asn Val Asp Leu
 35 40 45

Ala Ile Ser Thr Arg Gln Tyr His Leu Gln Gln Leu Phe Tyr Arg Tyr
 50 55 60

Gly Glu Asn Asn Ser Leu Ser Val Glu Gly Phe Arg Lys Leu Leu Gln
 65 70 75 80

Asn Ile Gly Ile Asp Lys Ile Lys Arg Ile His Ile His His Asp His
 85 90 95

Asp His His Ser Asp His Glu His His Ser Asp His Glu Arg His Ser
 100 105 110

Asp His Glu His His Ser Asp His Glu His His Ser Asp His Asn His
115 120 125

Ala Ala Ser Gly Lys Asn Lys Arg Lys Ala Leu Cys Pro Asp His Asp
130 135 140

Ser Asp Ser Ser Gly Lys Asp Pro Arg Asn Ser Gln Gly Lys Gly Ala
145 150 155 160

His Arg Pro Glu His Ala Ser Gly Arg Arg Asn Val Lys Asp Ser Val
165 170 175

Ser Ala Ser Glu Val Thr Ser Thr Val Tyr Asn Thr Val Ser Glu Gly
180 185 190

Thr His Phe Leu Glu Thr Ile Glu Thr Pro Arg Pro Gly Lys Leu Phe
195 200 205

Pro Lys Asp Val Ser Ser Ser Thr Pro Pro Ser Val Thr Ser Lys Ser
210 215 220

Arg Val Ser Arg Leu Ala Gly Arg Lys Thr Asn Glu Ser Val Ser Glu
225 230 235 240

Pro Arg Lys Gly Phe Met Tyr Ser Arg Asn Thr Asn Glu Asn Pro Gln
245 250 255

Glu Cys Phe Asn Ala Ser Lys Leu Leu Thr Ser His Gly Met Gly Ile
260 265 270

Gln Val Pro Leu Asn Ala Thr Glu Phe Asn Tyr Leu Cys Pro Ala Ile
275 280 285

Ile Asn Gln Ile Asp Ala Arg Ser Cys Leu Ile His Thr Ser Glu Lys
290 295 300

Lys Ala Glu Ile Pro Pro Lys Thr Tyr Ser Leu Gln Ile Ala Trp Val
305 310 315 320

Gly Gly Phe Ile Ala Ile Ser Ile Ile Ser Phe Leu Ser Leu Leu Gly
325 330 335

Val Ile Leu Val Pro Leu Met Asn Arg Val Phe Phe Lys Phe Leu Leu
340 345 350

Ser Phe Leu Val Ala Leu Ala Val Gly Thr Leu Ser Gly Asp Ala Phe
355 360 365

Leu His Leu Leu Pro His Ser His Ala Ser His His His Ser His Ser
370 375 380

His Glu Glu Pro Ala Met Glu Met Lys Arg Gly Pro Leu Phe Ser His
385 390 395 400

Leu Ser Ser Gln Asn Ile Glu Glu Ser Ala Tyr Phe Asp Ser Thr Trp
405 410 415

Lys Gly Leu Thr Ala Leu Gly Gly Leu Tyr Phe Met Phe Leu Val Glu
420 425 430

His Val Leu Thr Leu Ile Lys Gln Phe Lys Asp Lys Lys Lys Asn
435 440 445

Gln Lys Lys Pro Glu Asn Asp Asp Asp Val Glu Ile Lys Lys Gln Leu
450 455 460

Ser Lys Tyr Glu Ser Gln Leu Ser Thr Asn Glu Glu Lys Val Asp Thr
465 470 475 480

Asp Asp Arg Thr Glu Gly Tyr Leu Arg Ala Asp Ser Gln Glu Pro Ser
485 490 495

His Phe Asp Ser Gln Gln Pro Ala Val Leu Glu Glu Glu Val Met
500 505 510

Ile Ala His Ala His Pro Gln Glu Val Tyr Asn Glu Tyr Val Pro Arg
515 520 525

Gly Cys Lys Asn Lys Cys His Ser His Phe His Asp Thr Leu Gly Gln
530 535 540

Ser Asp Asp Leu Ile His His His Asp Tyr His His Ile Leu His
545 550 555 560

His His His His Gln Asn His His Pro His Ser His Ser Gln Arg Tyr
 565 570 575

Ser Arg Glu Glu Leu Lys Asp Ala Gly Val Ala Thr Leu Ala Trp Met
 580 585 590

Val Ile Met Gly Asp Gly Leu His Asn Phe Ser Asp Gly Leu Ala Ile
 595 600 605

Gly Ala Ala Phe Thr Glu Gly Leu Ser Ser Gly Leu Ser Thr Ser Val
 610 615 620

Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp Phe Ala Val
 625 630 635 640

Leu Leu Lys Ala Gly Met Thr Val Lys Gln Ala Val Leu Tyr Asn Ala
 645 650 655

Leu Ser Ala Met Leu Ala Tyr Leu Gly Met Ala Thr Gly Ile Phe Ile
 660 665 670

Gly His Tyr Ala Glu Asn Val Ser Met Trp Ile Phe Ala Leu Thr Ala
 675 680 685

Gly Leu Phe Met Tyr Val Ala Leu Val Asp Met Val Pro Glu Met Leu
 690 695 700

His Asn Asp Ala Ser Asp His Gly Cys Ser Arg Trp Gly Tyr Phe Phe
 705 710 715 720

Leu Gln Asn Ala Gly Met Leu Leu Gly Phe Gly Ile Met Leu Leu Ile
 725 730 735

Ser Ile Phe Glu His Lys Ile Val Phe Arg Ile Asn Phe
 740 745

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 <212> DNA
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<222> (147)..(1625)

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| Val Leu Thr Tyr Phe Ile Ala Leu Ser Ile Gly Thr Leu Leu Ser Asn | |
| 190 195 200 | |
| gct cta ttc cag ctc atc cca gag gca ttt ggt ttc aac cct ctg gaa | 797 |
| Ala Leu Phe Gln Leu Ile Pro Glu Ala Phe Gly Phe Asn Pro Leu Glu | |
| 205 210 215 | |
| gat tat tat gtc tcc aag tct gca gtg gtg ttt ggg ggc ttt tat ctt | 845 |
| Asp Tyr Tyr Val Ser Lys Ser Ala Val Val Phe Gly Gly Phe Tyr Leu | |
| 220 225 230 | |
| ttc ttt ttc aca gag aag atc ttg aag att ctt ctt aag cag aaa aat | 893 |
| Phe Phe Thr Glu Lys Ile Leu Lys Ile Leu Leu Lys Gln Lys Asn | |
| 235 240 245 | |
| gag cat cat cat gga cac agc cat tat gcc tct gag tcg ctt ccc tcc | 941 |
| Glu His His His Gly His Ser His Tyr Ala Ser Glu Ser Leu Pro Ser | |
| 250 255 260 265 | |
| aag aag gac cag gag gag ggg gtg atg gag aag ctg cag aac ggg gac | 989 |
| Lys Lys Asp Gln Glu Glu Gly Val Met Glu Lys Leu Gln Asn Gly Asp | |
| 270 275 280 | |
| ctg gac cac atg att cct cag cac tgc agc agt gag ctg gac ggc aag | 1037 |
| Leu Asp His Met Ile Pro Gln His Cys Ser Ser Glu Leu Asp Gly Lys | |
| 285 290 295 | |
| gct ccc atg gtg gac gag aag gtc att gtg ggc tcg ctc tct gtg cag | 1085 |
| Ala Pro Met Val Asp Glu Lys Val Ile Val Gly Ser Leu Ser Val Gln | |
| 300 305 310 | |
| gac ctg cag gct tcc cag agt gct tgc tac tgg ctg aaa ggt gtc cgc | 1133 |
| Asp Leu Gln Ala Ser Gln Ser Ala Cys Tyr Trp Leu Lys Gly Val Arg | |
| 315 320 325 | |
| tac tct gat atc ggc act ctg gcc tgg atg atc act ctg agc gac ggc | 1181 |
| Tyr Ser Asp Ile Gly Thr Leu Ala Trp Met Ile Thr Leu Ser Asp Gly | |
| 330 335 340 345 | |
| ctc cat aat ttc atc gat ggc ctg gcc atc ggt gct tcc ttc act gtg | 1229 |
| Leu His Asn Phe Ile Asp Gly Leu Ala Ile Gly Ala Ser Phe Thr Val | |
| 350 355 360 | |
| tca gtt ttc caa ggc atc agc acc tcg gtg gcc atc ctc tgt gag gag | 1277 |
| Ser Val Phe Gln Gly Ile Ser Thr Ser Val Ala Ile Leu Cys Glu Glu | |
| 365 370 375 | |
| ttc cca cgt gag cta gga gac ttt gtc atc ctg ctc aac gct ggg atg | 1325 |
| Phe Pro Arg Glu Leu Gly Asp Phe Val Ile Leu Leu Asn Ala Gly Met | |
| 380 385 390 | |
| agc atc caa caa gct ctc ttc aac ttc ctt tct gcc tgc tgc tgc | 1373 |
| Ser Ile Gln Gln Ala Leu Phe Phe Asn Phe Leu Ser Ala Cys Cys Cys | |
| 395 400 405 | |

| | |
|--|------|
| tac ctg ggt ctg gcc ttt ggc atc ctg gcc ggc agc cac ttc tct gcc | 1421 |
| Tyr Leu Gly Leu Ala Phe Gly Ile Leu Ala Gly Ser His Phe Ser Ala | |
| 410 415 420 425 | |
| aac tgg att ttt gcg cta gct gga gga atg ttc ttg tat att tct ctg | 1469 |
| Asn Trp Ile Phe Ala Leu Ala Gly Gly Met Phe Leu Tyr Ile Ser Leu | |
| 430 435 440 | |
| gct gat atg ttc cct gag atg aat gag gtc tgt caa gag gat gaa agg | 1517 |
| Ala Asp Met Phe Pro Glu Met Asn Glu Val Cys Gln Glu Asp Glu Arg | |
| 445 450 455 | |
| aag ggc agc atc ttg att cca ttt atc atc cag aac ctg ggc ctc ctg | 1565 |
| Lys Gly Ser Ile Leu Ile Pro Phe Ile Ile Gln Asn Leu Gly Leu Leu | |
| 460 465 470 | |
| act gga ttc acc atc atg gtg gtc ctc acc atg tat tca gga cag atc | 1613 |
| Thr Gly Phe Thr Ile Met Val Val Leu Thr Met Tyr Ser Gly Gln Ile | |
| 475 480 485 | |
| cag att ggg tag ggctctgcca agaggcctgtg ggactggaag tcggggccctg | 1665 |
| Gln Ile Gly | |
| 490 | |
| ggctgcccga tcgccagccc gaggacttac catccacaat gcaccacgga agaggccgtt | 1725 |
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| tgtatcctag gaataagctg ccctggtaac cagtctctag ctatgcctc ttgcctctc | 1845 |
| ctcacctcct tttctctcag tgactctgga acctgaatgc agcttacaag acaagcctga | 1905 |
| ctttttctc tgattacctt ggccctctct tggaccagg gctgaaagg tttgaatcct | 1965 |
| ttacccaaca atgcaaaaat agagccaatg gttataactt ggctagaaat atcaagagtt | 2025 |
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| cttctctcaa agagaacctg aagtcagaac acatgagcag ggtgagagg gaggcaagg | 2205 |
| tcatcctgaa tggagagga agtcgaacca ctgctgtgt tcttgcagg atgctcactt | 2265 |
| gttcctactg agatgctgga tattgattt gtaacagcac ctgggtttc acggctgtcc | 2325 |
| gagtgagcta acgtggcggt gtggctgcct ggacccctc tttcaggta acgctgacag | 2385 |
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| catttgagac ctctgtgtta gagggagac tgcacaaaact atccctcccc aggttgagac | 2565 |
| gtctgcagag tggcaagctg actttagaa atggggtgcc atttatgctc tacttagaca | 2625 |

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| cagatgttg cagaatggtt ggcctaatac ttatgtaca gatgggtttt aaatgaccgg | 2805 |
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| ggccactgtg gagcccttgc ctccgagctc tggcttcaag gggagctttt ctccaggttc | 2985 |
| actaggtgaa ttgatttattt attatcatat tgataatgtg agattctta gccactttgg | 3045 |
| ggagcctgtc cctccagaag cctttcttag tggtgcac agttggagcc cagggccat | 3105 |
| gtttgcaaac tgattcatgt gcatggctga caggagtaact ggttcaactac caatgcctga | 3165 |
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| aggactgatt tcctggtggg attatggtcc agtttacca aagaaccaat tccttgaatg | 3465 |
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| ccactgattt tggcaacagc tttgcctcat gagtcaaaaa ttggcaattt cttttgattt | 4005 |
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|------------|------------|------------|------------|------------|-------------|------|
| cttgggtttt | aaaaagaagg | cttctctgtt | tggtagcgt | aagagctgag | tatagtaagt | 4365 |
| cctcttccaa | agagatggca | atatgctggg | catctacttt | aaaacaaagt | tgtctgattt | 4425 |
| ttgcaagaga | ggttaggatt | ttattgttct | tatccctt | tacagttctg | cagttccatc | 4485 |
| acagtatttt | tttaaataac | tcaggtgtat | gagaagaaat | tagaaaagaa | aattaactta | 4545 |
| tgtggactgt | aatgtttta | ttttaagat | tctataaata | aagctatatt | ctgttaattgt | 4605 |
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| Met | Lys | Leu | Leu | Leu | Leu | His | Pro | Ala | Phe | Gln | Ser | Cys | Leu | Leu | Leu |
| 1 | | | | | | 5 | | | 10 | | | | 15 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Leu | Gly | Leu | Trp | Arg | Thr | Thr | Pro | Glu | Ala | His | Ala | Ser | Ser |
| | | | | | | | 20 | | 25 | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gly | Ala | Pro | Ala | Ile | Ser | Ala | Ala | Ser | Phe | Leu | Gln | Asp | Leu | Ile |
| | | | | | | 35 | | 40 | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Arg | Tyr | Gly | Glu | Gly | Asp | Ser | Pro | Thr | Leu | Gln | Gln | Leu | Lys | Ala |
| | | | | | | 50 | | 55 | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Asn | His | Leu | Asp | Val | Gly | Val | Gly | Arg | Gly | Asn | Val | Thr | Gln |
| | | | | | | 65 | | 70 | | 75 | | 80 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Gln | Gly | His | Arg | Asn | Leu | Ser | Thr | Cys | Phe | Ser | Ser | Gly | Asp |
| | | | | | | | 85 | | 90 | | | 95 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Phe | Thr | Ala | His | Asn | Phe | Ser | Glu | Gln | Ser | Arg | Ile | Gly | Ser | Ser |
| | | | | | | | 100 | | 105 | | 110 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Leu | Gln | Glu | Phe | Cys | Pro | Thr | Ile | Leu | Gln | Gln | Leu | Asp | Ser | Arg |
| | | | | | | | 115 | | 120 | | 125 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Cys | Thr | Ser | Glu | Asn | Gln | Glu | Asn | Glu | Asn | Glu | Gln | Thr | Glu | |
| | | | | | | | 130 | | 135 | | 140 | | | | |

Glu Gly Arg Pro Ser Ala Val Glu Val Trp Gly Phe Gly Phe Leu Ser
145 150 155 160

Val Ser Leu Ile Asn Leu Ala Ser Leu Leu Gly Val Leu Val Leu Pro
165 170 175

Cys Thr Glu Lys Ala Phe Phe Ser Arg Val Leu Thr Tyr Phe Ile Ala
180 185 190

Leu Ser Ile Gly Thr Leu Leu Ser Asn Ala Leu Phe Gln Leu Ile Pro
195 200 205

Glu Ala Phe Gly Phe Asn Pro Leu Glu Asp Tyr Tyr Val Ser Lys Ser
210 215 220

Ala Val Val Phe Gly Gly Phe Tyr Leu Phe Phe Thr Glu Lys Ile
225 230 235 240

Leu Lys Ile Leu Leu Lys Gln Lys Asn Glu His His His Gly His Ser
245 250 255

His Tyr Ala Ser Glu Ser Leu Pro Ser Lys Lys Asp Gln Glu Glu Gly
260 265 270

Val Met Glu Lys Leu Gln Asn Gly Asp Leu Asp His Met Ile Pro Gln
275 280 285

His Cys Ser Ser Glu Leu Asp Gly Lys Ala Pro Met Val Asp Glu Lys
290 295 300

Val Ile Val Gly Ser Leu Ser Val Gln Asp Leu Gln Ala Ser Gln Ser
305 310 315 320

Ala Cys Tyr Trp Leu Lys Gly Val Arg Tyr Ser Asp Ile Gly Thr Leu
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Leu Ala Ile Gly Ala Ser Phe Thr Val Ser Val Phe Gln Gly Ile Ser
355 360 365

Thr Ser Val Ala Ile Leu Cys Glu Glu Phe Pro Arg Glu Leu Gly Asp
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Phe Val Ile Leu Leu Asn Ala Gly Met Ser Ile Gln Gln Ala Leu Phe
 385 390 395 400

Phe Asn Phe Leu Ser Ala Cys Cys Tyr Leu Gly Leu Ala Phe Gly
 405 410 415

Ile Leu Ala Gly Ser His Phe Ser Ala Asn Trp Ile Phe Ala Leu Ala
 420 425 430

Gly Gly Met Phe Leu Tyr Ile Ser Leu Ala Asp Met Phe Pro Glu Met
 435 440 445

Asn Glu Val Cys Gln Glu Asp Glu Arg Lys Gly Ser Ile Leu Ile Pro
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 Met Ala Ser Leu Val Ser Leu Glu Leu
 1 5

ggg ctg ctt ctg gct gtg ctg gtg acg gcg acg gcg tcc ccg cct 161
 Gly Leu Leu Leu Ala Val Leu Val Val Thr Ala Thr Ala Ser Pro Pro
 10 15 20 25

gct ggt ctg ctg agc ctg ctc acc tct ggc cag ggc gct ctg gat caa 209
 Ala Gly Leu Leu Ser Leu Leu Thr Ser Gly Gln Gly Ala Leu Asp Gln
 30 35 40

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| gag gct ctg ggc ggc ctg tta aat acg ctg gcg gac cgt gtg cac tgc | 257 |
| Glu Ala Leu Gly Gly Leu Leu Asn Thr Leu Ala Asp Arg Val His Cys | |
| 45 50 55 | |
| acc aac ggg ccg tgt gga aag tgc ctg tct gtg gag gac gcc ctg ggc | 305 |
| Thr Asn Gly Pro Cys Gly Lys Cys Leu Ser Val Glu Asp Ala Leu Gly | |
| 60 65 70 | |
| ctg ggc gag cct gag ggg tca ggg ctg ccc ccg ggc ccg gtc ctg gag | 353 |
| Leu Gly Glu Pro Glu Gly Ser Gly Leu Pro Pro Gly Pro Val Leu Glu | |
| 75 80 85 | |
| gcc agg tac gtc gcc cgc ctc agt gcc gcc gtc ctg tac ctc agc | 401 |
| Ala Arg Tyr Val Ala Arg Leu Ser Ala Ala Val Leu Tyr Leu Ser | |
| 90 95 100 105 | |
| aac ccc gag ggc acc tgt gag gac act cgg gct ggc ctc tgg gcc tct | 449 |
| Asn Pro Glu Gly Thr Cys Glu Asp Thr Arg Ala Gly Leu Trp Ala Ser | |
| 110 115 120 | |
| cat gca gac cac ctc ctg gcc ctg ctc gag agc ccc aag gcc ctg acc | 497 |
| His Ala Asp His Leu Leu Ala Leu Leu Glu Ser Pro Lys Ala Leu Thr | |
| 125 130 135 | |
| ccg ggc ctg agc tgg ctg ctg cag agg atg cag gcc cgg gct gcc ggc | 545 |
| Pro Gly Leu Ser Trp Leu Leu Gln Arg Met Gln Ala Arg Ala Ala Gly | |
| 140 145 150 | |
| cag acc ccc aag acg gcc tgc gta gat atc cct cag ctg ctg gag gag | 593 |
| Gln Thr Pro Lys Thr Ala Cys Val Asp Ile Pro Gln Leu Leu Glu Glu | |
| 155 160 165 | |
| gcg gtg ggg gcg ggg gct ccg ggc agt gct ggc ggc gtc ctg gct gcc | 641 |
| Ala Val Gly Ala Gly Ala Pro Gly Ser Ala Gly Gly Val Leu Ala Ala | |
| 170 175 180 185 | |
| ctg ctg gac cat gtc agg agc ggg tct tgc ttc cac gcc ttg ccg agc | 689 |
| Leu Leu Asp His Val Arg Ser Gly Ser Cys Phe His Ala Leu Pro Ser | |
| 190 195 200 | |
| cct cag tac ttc gtg gac ttt gtg ttc cag cag cac agc agc gag gtc | 737 |
| Pro Gln Tyr Phe Val Asp Phe Val Phe Gln Gln His Ser Ser Glu Val | |
| 205 210 215 | |
| cct atg acg ctg gcc gag ctg tca gcc ttg atg cag cgc ctg ggg gtg | 785 |
| Pro Met Thr Leu Ala Glu Leu Ser Ala Leu Met Gln Arg Leu Gly Val | |
| 220 225 230 | |
| ggc agg gag gcc cac agt gac cac agt cat cgg cac agg gga gcc agc | 833 |
| Gly Arg Glu Ala His Ser Asp His Ser His Arg His Arg Gly Ala Ser | |
| 235 240 245 | |
| agc cgg gac cct gtg ccc ctc atc agc tcc agc aac agc tcc agt gtg | 881 |
| Ser Arg Asp Pro Val Pro Leu Ile Ser Ser Ser Asn Ser Ser Ser Val | |
| 250 255 260 265 | |

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| tgg gac acg gta tgc ctg agt gcc agg gac gtg atg gct gca tat gga | 929 |
| Trp Asp Thr Val Cys Leu Ser Ala Arg Asp Val Met Ala Ala Tyr Gly | |
| 270 275 280 | |
| ctg tcg gaa cag gct ggg gtg acc ccg gag gcc tgg gcc caa ctg agc | 977 |
| Leu Ser Glu Gln Ala Gly Val Thr Pro Glu Ala Trp Ala Gln Leu Ser | |
| 285 290 295 | |
| cct gcc ctg ctc caa cag cag ctg agt gga gcc tgc acc tcc cag tcc | 1025 |
| Pro Ala Leu Leu Gln Gln Leu Ser Gly Ala Cys Thr Ser Gln Ser | |
| 300 305 310 | |
| agg ccc ccc gtc cag gac cag ctc agc cag tca gag agg tat ctg tac | 1073 |
| Arg Pro Pro Val Gln Asp Gln Leu Ser Gln Ser Glu Arg Tyr Leu Tyr | |
| 315 320 325 | |
| ggc tcc ctg gcc acg ctg ctc atc tgc ctc tgc gcg gtc ttt ggc ctc | 1121 |
| Gly Ser Leu Ala Thr Leu Leu Ile Cys Leu Cys Ala Val Phe Gly Leu | |
| 330 335 340 345 | |
| ctg ctg ctg acc tgc act ggc tgc agg ggg gtc acc cac tac atc ctg | 1169 |
| Leu Leu Leu Thr Cys Thr Gly Cys Arg Gly Val Thr His Tyr Ile Leu | |
| 350 355 360 | |
| cag acc ttc ctg agc ctg gca gtg ggt gca ctc act ggg gac gct gtc | 1217 |
| Gln Thr Phe Leu Ser Leu Ala Val Gly Ala Leu Thr Gly Asp Ala Val | |
| 365 370 375 | |
| ctg cat ctg acg ccc aag gtg ctg ggg ctg cat aca cac agc gaa gag | 1265 |
| Leu His Leu Thr Pro Lys Val Leu Gly Leu His Thr His Ser Glu Glu | |
| 380 385 390 | |
| ggc ctc agc cca cag ccc acc tgg cgc ctc ctg gct atg ctg gcc ggg | 1313 |
| Gly Leu Ser Pro Gln Pro Thr Trp Arg Leu Leu Ala Met Leu Ala Gly | |
| 395 400 405 | |
| ctc tac gcc ttc ttc ctg ttt gag aac ctc ttc aat ctc ctg ctg ccc | 1361 |
| Leu Tyr Ala Phe Phe Leu Phe Glu Asn Leu Phe Asn Leu Leu Leu Pro | |
| 410 415 420 425 | |
| agg gac ccg gag gac ctg gag gac ggg ccc tgc ggc cac agc agc cat | 1409 |
| Arg Asp Pro Glu Asp Leu Glu Asp Gly Pro Cys Gly His Ser Ser His | |
| 430 435 440 | |
| agc cac ggg ggc cac agc cac ggt gtg tcc ctg cag ctg gca ccc agc | 1457 |
| Ser His Gly His Ser His Gly Val Ser Leu Gln Leu Ala Pro Ser | |
| 445 450 455 | |
| gag ctc cgg cag ccc aag ccc ccc cac gag ggc tcc cgc gca gac ctg | 1505 |
| Glu Leu Arg Gln Pro Lys Pro Pro His Glu Gly Ser Arg Ala Asp Leu | |
| 460 465 470 | |
| gtg gcg gag gag agc ccg gag ctg ctg aac cct gag ccc agg aga ctg | 1553 |
| Val Ala Glu Glu Ser Pro Glu Leu Leu Asn Pro Glu Pro Arg Arg Leu | |
| 475 480 485 | |

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| agc cca gag ttg agg cta ctg ccc tat atg atc act ctg ggc gac gcc | 1601 |
| Ser Pro Glu Leu Arg Leu Leu Pro Tyr Met Ile Thr Leu Gly Asp Ala | |
| 490 495 500 505 | |
| gtg cac aac ttc gcc gac ggg ctg gcc gtg ggc gcc gcc ttc gcg tcc | 1649 |
| Val His Asn Phe Ala Asp Gly Leu Ala Val Gly Ala Ala Phe Ala Ser | |
| 510 515 520 | |
| tcc tgg aag acc ggg ctg gcc acc tcg ctg gcc gtg ttc tgc cac gag | 1697 |
| Ser Trp Lys Thr Gly Leu Ala Thr Ser Leu Ala Val Phe Cys His Glu | |
| 525 530 535 | |
| ttg cca cac gag ctg ggg gac ttc gcc gtc ttg ctg cac gcg ggg ctg | 1745 |
| Leu Pro His Glu Leu Gly Asp Phe Ala Ala Leu Leu His Ala Gly Leu | |
| 540 545 550 | |
| tcc gtg cgc caa gca ctg ctg aac ctg gcc tcc gcg ctc acg gcc | 1793 |
| Ser Val Arg Gln Ala Leu Leu Asn Leu Ala Ser Ala Leu Thr Ala | |
| 555 560 565 | |
| ttc gct ggt ctc tac gtg gca ctc gcg gtt gga gtc agc gag gag agc | 1841 |
| Phe Ala Gly Leu Tyr Val Ala Leu Ala Val Gly Val Ser Glu Glu Ser | |
| 570 575 580 585 | |
| gag gcc tgg atc ctg gca gtg gcc acc ggc ctg ttc ctc tac gta gca | 1889 |
| Glu Ala Trp Ile Leu Ala Val Ala Thr Gly Leu Phe Leu Tyr Val Ala | |
| 590 595 600 | |
| ctc tgc gac atg ctc ccg gcg atg ttg aaa gta cgg gac ccg cgg ccc | 1937 |
| Leu Cys Asp Met Leu Pro Ala Met Leu Lys Val Arg Asp Pro Arg Pro | |
| 605 610 615 | |
| tgg ctc ctc ttc ctg ctg cac aac gtg ggc ctg ctg ggc ggc tgg acc | 1985 |
| Trp Leu Leu Phe Leu Leu His Asn Val Gly Leu Leu Gly Gly Trp Thr | |
| 620 625 630 | |
| gtc ctg ctg ctg tcc ctg tac gag gat gac atc acc ttc tga | 2030 |
| Val Leu Leu Leu Ser Leu Tyr Glu Asp Asp Ile Thr Phe | |
| 635 640 645 | |
| taccctgccc tagtcccca ccttgactt aagatccac acctcacaaa cctacagccc | 2090 |
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| tggaaaaaaaa aaaaaaaaaa aaaaaaaaa | 2178 |

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Asn Thr Leu Ala Asp Arg Val His Cys Thr Asn Gly Pro Cys Gly Lys
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Cys Leu Ser Val Glu Asp Ala Leu Gly Leu Gly Glu Pro Glu Gly Ser
65 70 75 80

Gly Leu Pro Pro Gly Pro Val Leu Glu Ala Arg Tyr Val Ala Arg Leu
85 90 95

Ser Ala Ala Ala Val Leu Tyr Leu Ser Asn Pro Glu Gly Thr Cys Glu
100 105 110

Asp Thr Arg Ala Gly Leu Trp Ala Ser His Ala Asp His Leu Leu Ala
115 120 125

Leu Leu Glu Ser Pro Lys Ala Leu Thr Pro Gly Leu Ser Trp Leu Leu
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Gln Arg Met Gln Ala Arg Ala Ala Gly Gln Thr Pro Lys Thr Ala Cys
145 150 155 160

Val Asp Ile Pro Gln Leu Leu Glu Ala Val Gly Ala Gly Ala Pro
165 170 175

Gly Ser Ala Gly Gly Val Leu Ala Ala Leu Leu Asp His Val Arg Ser
180 185 190

Gly Ser Cys Phe His Ala Leu Pro Ser Pro Gln Tyr Phe Val Asp Phe
195 200 205

Val Phe Gln Gln His Ser Ser Glu Val Pro Met Thr Leu Ala Glu Leu
210 215 220

Ser Ala Leu Met Gln Arg Leu Gly Val Gly Arg Glu Ala His Ser Asp
225 230 235 240

His Ser His Arg His Arg Gly Ala Ser Ser Arg Asp Pro Val Pro Leu
245 250 255

Ile Ser Ser Ser Asn Ser Ser Val Trp Asp Thr Val Cys Leu Ser
260 265 270

Ala Arg Asp Val Met Ala Ala Tyr Gly Leu Ser Glu Gln Ala Gly Val
275 280 285

Thr Pro Glu Ala Trp Ala Gln Leu Ser Pro Ala Leu Leu Gln Gln
290 295 300

Leu Ser Gly Ala Cys Thr Ser Gln Ser Arg Pro Pro Val Gln Asp Gln
305 310 315 320

Leu Ser Gln Ser Glu Arg Tyr Leu Tyr Gly Ser Leu Ala Thr Leu Leu
325 330 335

Ile Cys Leu Cys Ala Val Phe Gly Leu Leu Leu Leu Thr Cys Thr Gly
340 345 350

Cys Arg Gly Val Thr His Tyr Ile Leu Gln Thr Phe Leu Ser Leu Ala
355 360 365

Val Gly Ala Leu Thr Gly Asp Ala Val Leu His Leu Thr Pro Lys Val
370 375 380

Leu Gly Leu His Thr His Ser Glu Glu Gly Leu Ser Pro Gln Pro Thr
385 390 395 400

Trp Arg Leu Leu Ala Met Leu Ala Gly Leu Tyr Ala Phe Phe Leu Phe
405 410 415

Glu Asn Leu Phe Asn Leu Leu Pro Arg Asp Pro Glu Asp Leu Glu
420 425 430

Asp Gly Pro Cys Gly His Ser Ser His Ser His Gly Gly His Ser His
435 440 445

Gly Val Ser Leu Gln Leu Ala Pro Ser Glu Leu Arg Gln Pro Lys Pro
450 455 460

Pro His Glu Gly Ser Arg Ala Asp Leu Val Ala Glu Glu Ser Pro Glu
465 470 475 480

Leu Leu Asn Pro Glu Pro Arg Arg Leu Ser Pro Glu Leu Arg Leu Leu
485 490 495

Pro Tyr Met Ile Thr Leu Gly Asp Ala Val His Asn Phe Ala Asp Gly
500 505 510

Leu Ala Val Gly Ala Ala Phe Ala Ser Ser Trp Lys Thr Gly Leu Ala
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Thr Ser Leu Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp
530 535 540

Phe Ala Ala Leu Leu His Ala Gly Leu Ser Val Arg Gln Ala Leu Leu
545 550 555 560

Leu Asn Leu Ala Ser Ala Leu Thr Ala Phe Ala Gly Leu Tyr Val Ala
565 570 575

Leu Ala Val Gly Val Ser Glu Glu Ser Glu Ala Trp Ile Leu Ala Val
580 585 590

Ala Thr Gly Leu Phe Leu Tyr Val Ala Leu Cys Asp Met Leu Pro Ala
595 600 605

Met Leu Lys Val Arg Asp Pro Arg Pro Trp Leu Leu Phe Leu Leu His
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ctcggagcag cggcggacac tgacgctccc gcccttggc aaggacgcca gtgcgcccgc 300
gcgcgtccct ctgcgcggca gcccgtcgcg gcccctcaag ggaaagccca ggccagg 360
atg gcc ccg ggt cgc gcg gtg gcc ggg ctc ctg ttg ctg gcg gcc 525
Met Ala Pro Gly Arg Ala Val Ala Gly Leu Leu Leu Leu Ala Ala
1 5 10 15

ggc ctc gga gga gtg gcg gag ggg cca ggg cta gcc ttc agc gag gat 573
Gly Leu Gly Gly Val Ala Glu Gly Pro Gly Leu Ala Phe Ser Glu Asp
20 25 30

gtg ctg agc gtg ttc ggc gcg aat ctg agc ctg tcg gcg gcg cag ctc 621
Val Leu Ser Val Phe Gly Ala Asn Leu Ser Leu Ser Ala Ala Gln Leu
35 40 45

cag cac ttg ctg gag cag atg gga gcc gcc tcc cgc gtg ggc gtc ccg 669
Gln His Leu Leu Glu Gln Met Gly Ala Ala Ser Arg Val Gly Val Pro
50 55 60

gag cct ggc cag ctg cac ttc aac cag tgt tta act gct gaa gag atc 717
Glu Pro Gly Gln Leu His Phe Asn Gln Cys Leu Thr Ala Glu Glu Ile
65 70 75 80

ttt tcc ctt cat ggc ttt tca aat gct acc caa ata acc agc tcc aaa 765
Phe Ser Leu His Gly Phe Ser Asn Ala Thr Gln Ile Thr Ser Ser Lys
85 90 95

ttc tct gtc atc tgt cca gca gtc tta cag caa ttg aac ttt cac cca 813
Phe Ser Val Ile Cys Pro Ala Val Leu Gln Gln Leu Asn Phe His Pro
100 105 110

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| | |
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| tgt gag gat cgg ccc aag cac aaa aca aca aga cca agt cat tca gaa gtt | 861 |
| Cys Glu Asp Arg Pro Lys His Lys Thr Arg Pro Ser His Ser Glu Val | |
| 115 120 125 | |
| tgg gga tat gga ttc ctg tca gtg acg att att aat ctg gca tct ctc | 909 |
| Trp Gly Tyr Gly Phe Leu Ser Val Thr Ile Ile Asn Leu Ala Ser Leu | |
| 130 135 140 | |
| ctc gga ttg att ttg act cca ctg ata aag aaa tct tat ttc cca aag | 957 |
| Leu Gly Leu Ile Leu Thr Pro Leu Ile Lys Ser Tyr Phe Pro Lys | |
| 145 150 155 160 | |
| att ttg acc ttt ttt gtg ggg ctg gct att ggg act ctt ttt tca aat | 1005 |
| Ile Leu Thr Phe Phe Val Gly Leu Ala Ile Gly Thr Leu Phe Ser Asn | |
| 165 170 175 | |
| gca att ttc caa ctt att cca gag gca ttt gga ttt gat ccc aaa gtc | 1053 |
| Ala Ile Phe Gln Leu Ile Pro Glu Ala Phe Gly Phe Asp Pro Lys Val | |
| 180 185 190 | |
| gac agt tat gtt gag aag gca gtt gct gtg ttt ggt gga ttt tac cta | 1101 |
| Asp Ser Tyr Val Glu Lys Ala Val Ala Val Phe Gly Gly Phe Tyr Leu | |
| 195 200 205 | |
| ctt ttc ttt ttt gaa aga atg cta aag atg tta tta aag aca tat ggt | 1149 |
| Leu Phe Phe Glu Arg Met Leu Lys Met Leu Leu Lys Thr Tyr Gly | |
| 210 215 220 | |
| cag aat ggt cat acc cac ttt gga aat gat aac ttt ggt cct caa gaa | 1197 |
| Gln Asn Gly His Thr His Phe Gly Asn Asp Asn Phe Gly Pro Gln Glu | |
| 225 230 235 240 | |
| aaa act cat caa cct aaa gca tta cct gcc atc aat ggt gtg aca tgc | 1245 |
| Lys Thr His Gln Pro Lys Ala Leu Pro Ala Ile Asn Gly Val Thr Cys | |
| 245 250 255 | |
| tat gca aat cct gct gtc aca gaa gct aat gga cat atc cat ttt gat | 1293 |
| Tyr Ala Asn Pro Ala Val Thr Glu Ala Asn Gly His Ile His Phe Asp | |
| 260 265 270 | |
| aat gtc agt gtg gta tct cta cag gat gga aaa aaa gag cca agt tca | 1341 |
| Asn Val Ser Val Val Ser Leu Gln Asp Gly Lys Lys Glu Pro Ser Ser | |
| 275 280 285 | |
| tgt acc tgt ttg aag ggg ccc aaa ctg tca gaa ata ggg acg att gcc | 1389 |
| Cys Thr Cys Leu Lys Gly Pro Lys Leu Ser Glu Ile Gly Thr Ile Ala | |
| 290 295 300 | |
| tgg atg ata acg ctc tgc gat gcc ctc cac aat ttc atc gat ggc ctg | 1437 |
| Trp Met Ile Thr Leu Cys Asp Ala Leu His Asn Phe Ile Asp Gly Leu | |
| 305 310 315 320 | |
| gcg att ggg gct tcc tgc acc ttg tct ctc ctt cag gga ctc agt act | 1485 |
| Ala Ile Gly Ala Ser Cys Thr Leu Ser Leu Leu Gln Gly Leu Ser Thr | |
| 325 330 335 | |

| | |
|--|------|
| tcc ata gca atc cta tgt gag gag ttt ccc cac gag tta gga gac ttt | 1533 |
| Ser Ile Ala Ile Leu Cys Glu Glu Phe Pro His Glu Leu Gly Asp Phe | |
| 340 345 350 | |
| gtg atc cta ctc aat gca ggg atg agc act cga caa gcc ttg cta ttc | 1581 |
| Val Ile Leu Leu Asn Ala Gly Met Ser Thr Arg Gln Ala Leu Leu Phe | |
| 355 360 365 | |
| aac ttc ctt tct gca tgt tcc tgc tat gtt ggg cta gct ttt ggc att | 1629 |
| Asn Phe Leu Ser Ala Cys Ser Cys Tyr Val Gly Leu Ala Phe Gly Ile | |
| 370 375 380 | |
| ttg gtg ggc aac aat ttc gct cca aat att ata ttt gca ctt gct gga | 1677 |
| Leu Val Gly Asn Asn Phe Ala Pro Asn Ile Ile Phe Ala Leu Ala Gly | |
| 385 390 395 400 | |
| ggc atg ttc ctc tat att tct ctg gca gat atg ttt cca gag atg aat | 1725 |
| Gly Met Phe Leu Tyr Ile Ser Leu Ala Asp Met Phe Pro Glu Met Asn | |
| 405 410 415 | |
| gat atg ctg aga gaa aag gta act gga aga aaa acc gat ttc acc ttc | 1773 |
| Asp Met Leu Arg Glu Lys Val Thr Gly Arg Lys Thr Asp Phe Thr Phe | |
| 420 425 430 | |
| ttc atg att cag aat gct gga atg tta act gga ttc aca gcc att cta | 1821 |
| Phe Met Ile Gln Asn Ala Gly Met Leu Thr Gly Phe Thr Ala Ile Leu | |
| 435 440 445 | |
| ctc att acc ttg tat gca gga gaa atc gaa ttg gag taa tagaaaatgg | 1870 |
| Leu Ile Thr Leu Tyr Ala Gly Glu Ile Glu Leu Glu | |
| 450 455 460 | |
| aagatggtgt tgttaataaa ggcatttaat agataaaaac atctccaaaa aggattttga | 1930 |
| agctgatcct atttagttaa aaagataatt ttgcttcaa ctgttagtcc agaaaactaa | 1990 |
| ttattggcat cagtctgtga aatagtccat tatttggat taaaaatgtt tcaaaaggaa | 2050 |
| ttcagtgtca gtctgagatg cctggatat aggagcctt gggaaatact tattttcag | 2110 |
| tattccatgc atattagata tcaccatgaa gcaagagaca tgcattctat aatcatgtag | 2170 |
| acactcagac tcagggaaa atacaagtta tattcctgaaa gcctttaaaa ctctatggta | 2230 |
| ggatcaaaga ttcaaattttt ttcagagagg ttttatttca attaattttt tctatgtc | 2290 |
| tcaagagcaa gtacatcaa atgttagaagg taaaatgtat gcaacactaa tataaattat | 2350 |
| tccaaatgtttttaaaggagcca aagaaaaaaa agatttctca cagtttttgc ttctgttttgc | 2410 |
| tatttcaattt aggaacttgc agtatttattt tgaaaaccat tctaaaataa taggagtttag | 2470 |
| gaaataaataa aagttttgct agccctgcta agttcaggct tagaggctt tcgctaaatgt | 2530 |
| taaacttcac cagattccac gaaaagctgg atagctttt ttctgactt tggatgtggtt | 2590 |

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|---|------|
| gcaccctca caaatggcag aacagtatgt aaagctggta acacctcggt ttcagtgcac | 2650 |
| catgtgtttg ctttgtgaag gtgaagaata tgttggttt gagaagaaaa ttggatgtaa | 2710 |
| ttttatgcaa ttactttt aagacaaaca taactattt gcagagaata tttaataaaa | 2770 |
| tgcaaaacaa cagctggact gctgtacatc aaggacagat taactggaaa acatatgttc | 2830 |
| cttatgtgtg attgagagcc attcagaaaa gacttcctt gtgttcagcc tatactttc | 2890 |
| catatggtat accttggaaaa aaattagcac accatggtta ttttctacc ttttataaaa | 2950 |
| gacagagcct gtttactcat tttagaagata gaaaaattt gtctaaaatt gaacatccta | 3010 |
| gattcacact cccaaagtac ttaaggtgat ttgatggtga gaaaaatgat tgacaaagcc | 3070 |
| caacaatgat ctcaggaatt acatttcca acagacaaaa aaatgtttc atgttagcagc | 3130 |
| aatgcagatt tggtaatat ttaatatata ttttagtatg tatttcactt tatgactgac | 3190 |
| aattaaaaaa tattgtttgg ccaaataatgta aacaccctt tgaaaccatg aaaaaaa | 3246 |

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 <213> Homo sapiens

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Met Ala Pro Gly Arg Ala Val Ala Gly Leu Leu Leu Leu Ala Ala Ala
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Gly Leu Gly Gly Val Ala Glu Gly Pro Gly Leu Ala Phe Ser Glu Asp
 20 25 30

Val Leu Ser Val Phe Gly Ala Asn Leu Ser Leu Ser Ala Ala Gln Leu
 35 40 45

Gln His Leu Leu Glu Gln Met Gly Ala Ala Ser Arg Val Gly Val Pro
 50 55 60

Glu Pro Gly Gln Leu His Phe Asn Gln Cys Leu Thr Ala Glu Glu Ile
 65 70 75 80

Phe Ser Leu His Gly Phe Ser Asn Ala Thr Gln Ile Thr Ser Ser Lys
 85 90 95

Phe Ser Val Ile Cys Pro Ala Val Leu Gln Gln Leu Asn Phe His Pro
 100 105 110

Cys Glu Asp Arg Pro Lys His Lys Thr Arg Pro Ser His Ser Glu Val
115 120 125

Trp Gly Tyr Gly Phe Leu Ser Val Thr Ile Ile Asn Leu Ala Ser Leu
130 135 140

Leu Gly Leu Ile Leu Thr Pro Leu Ile Lys Lys Ser Tyr Phe Pro Lys
145 150 155 160

Ile Leu Thr Phe Phe Val Gly Leu Ala Ile Gly Thr Leu Phe Ser Asn
165 170 175

Ala Ile Phe Gln Leu Ile Pro Glu Ala Phe Gly Phe Asp Pro Lys Val
180 185 190

Asp Ser Tyr Val Glu Lys Ala Val Ala Val Phe Gly Gly Phe Tyr Leu
195 200 205

Leu Phe Phe Glu Arg Met Leu Lys Met Leu Leu Lys Thr Tyr Gly
210 215 220

Gln Asn Gly His Thr His Phe Gly Asn Asp Asn Phe Gly Pro Gln Glu
225 230 235 240

Lys Thr His Gln Pro Lys Ala Leu Pro Ala Ile Asn Gly Val Thr Cys
245 250 255

Tyr Ala Asn Pro Ala Val Thr Glu Ala Asn Gly His Ile His Phe Asp
260 265 270

Asn Val Ser Val Val Ser Leu Gln Asp Gly Lys Lys Glu Pro Ser Ser
275 280 285

Cys Thr Cys Leu Lys Gly Pro Lys Leu Ser Glu Ile Gly Thr Ile Ala
290 295 300

Trp Met Ile Thr Leu Cys Asp Ala Leu His Asn Phe Ile Asp Gly Leu
305 310 315 320

Ala Ile Gly Ala Ser Cys Thr Leu Ser Leu Leu Gln Gly Leu Ser Thr
325 330 335

Ser Ile Ala Ile Leu Cys Glu Glu Phe Pro His Glu Leu Gly Asp Phe
 340 345 350

Val Ile Leu Leu Asn Ala Gly Met Ser Thr Arg Gln Ala Leu Leu Phe
 355 360 365

Asn Phe Leu Ser Ala Cys Ser Cys Tyr Val Gly Leu Ala Phe Gly Ile
 370 375 380

Leu Val Gly Asn Asn Phe Ala Pro Asn Ile Ile Phe Ala Leu Ala Gly
 385 390 395 400

Gly Met Phe Leu Tyr Ile Ser Leu Ala Asp Met Phe Pro Glu Met Asn
 405 410 415

Asp Met Leu Arg Glu Lys Val Thr Gly Arg Lys Thr Asp Phe Thr Phe
 420 425 430

Phe Met Ile Gln Asn Ala Gly Met Leu Thr Gly Phe Thr Ala Ile Leu
 435 440 445

Leu Ile Thr Leu Tyr Ala Gly Glu Ile Glu Leu Glu
 450 455 460

<210> 37
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<220>
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 <222> (106)..(1725)

<400> 37
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ataggagcca gaacctgagc ccctaagcca ttcccccac caatg atg ggg tcc cca 117
 Met Gly Ser Pro

gtg agt cat ctg ctg gcc ggc ttc tgt gtg tgg gtc gtc ttg ggc tgg 165
 Val Ser His Leu Leu Ala Gly Phe Cys Val Trp Val Val Leu Gly Trp
 5 10 15 20

| | |
|---|-----|
| gta ggg ggc tca gtc ccc aac ctg ggc cct gct gag cag gag cag aac | 213 |
| Val Gly Gly Ser Val Pro Asn Leu Gly Pro Ala Glu Gln Glu Gln Asn | |
| 25 30 35 | |
| cat tac ctg gcc cag ctg ttt ggc ctg tac ggc gag aat ggg acg ctg | 261 |
| His Tyr Leu Ala Gln Leu Phe Gly Leu Tyr Gly Glu Asn Gly Thr Leu | |
| 40 45 50 | |
| act gca ggg ggc ttg gcg cgg ctt ctc cac agc ctg ggg cta ggc cga | 309 |
| Thr Ala Gly Gly Leu Ala Arg Leu Leu His Ser Leu Gly Leu Gly Arg | |
| 55 60 65 | |
| gtt cag ggg ctt cgc ctg gga cag cat ggg cct ctg act gga cgg gct | 357 |
| Val Gln Gly Leu Arg Leu Gly Gln His Gly Pro Leu Thr Gly Arg Ala | |
| 70 75 80 | |
| gca tcc cca gct gca gac aat tcc aca cac agg cca cag aac cct gag | 405 |
| Ala Ser Pro Ala Ala Asp Asn Ser Thr His Arg Pro Gln Asn Pro Glu | |
| 85 90 95 100 | |
| ctg agt gtg gat gtc tgg gca ggg atg cct ctg ggt ccc tca ggg tgg | 453 |
| Leu Ser Val Asp Val Trp Ala Gly Met Pro Leu Gly Pro Ser Gly Trp | |
| 105 110 115 | |
| ggt gac ctg gaa gag tca aag gcc cct cac cta ccc cgt ggg cca gcc | 501 |
| Gly Asp Leu Glu Glu Ser Lys Ala Pro His Leu Pro Arg Gly Pro Ala | |
| 120 125 130 | |
| ccc tcg ggc ctg gac ctc ctt cac agg ctt ctg ttg ctg gac cac tca | 549 |
| Pro Ser Gly Leu Asp Leu Leu His Arg Leu Leu Leu Asp His Ser | |
| 135 140 145 | |
| ttg gct gac cac ctg aat gag gat tgt ctg aac ggc tcc cag ctg ctg | 597 |
| Leu Ala Asp His Leu Asn Glu Asp Cys Leu Asn Gly Ser Gln Leu Leu | |
| 150 155 160 | |
| gtc aat ttt ggc ttg agc ccc gct gct cct ctg acc cct cgt cag ttt | 645 |
| Val Asn Phe Gly Leu Ser Pro Ala Ala Pro Leu Thr Pro Arg Gln Phe | |
| 165 170 175 180 | |
| gct ctg ctg tgc cca gcc ctg ctt tat cag atc gac agc cgc gtc tgc | 693 |
| Ala Leu Leu Cys Pro Ala Leu Leu Tyr Gln Ile Asp Ser Arg Val Cys | |
| 185 190 195 | |
| atc ggc gct ccg gcc cct gca ccc cca ggg gat cta cta tct gcc ctg | 741 |
| Ile Gly Ala Pro Ala Pro Ala Pro Pro Gly Asp Leu Leu Ser Ala Leu | |
| 200 205 210 | |
| ctt cag agt gcc ctg gca gtc ctg ttg ctc agc ctc cct tct ccc cta | 789 |
| Leu Gln Ser Ala Leu Ala Val Leu Leu Leu Ser Leu Pro Ser Pro Leu | |
| 215 220 225 | |
| tcc ctg ctg ctg cgg ctc ctg gga cct cgt cta cta cgg ccc ttg | 837 |
| Ser Leu Leu Leu Arg Leu Leu Gly Pro Arg Leu Leu Arg Pro Leu | |
| 230 235 240 | |

| | |
|---|------|
| ctg ggc ttc ctg ggg gcc ctg gcg gtg ggc act ctt tgt ggg gat gca | 885 |
| Leu Gly Phe Leu Gly Ala Leu Ala Val Gly Thr Leu Cys Gly Asp Ala | |
| 245 250 255 260 | |
| ctg cta cat ctg cta ccg cat gca caa gaa ggg cgg cac gca gga cct | 933 |
| Leu Leu His Leu Leu Pro His Ala Gln Glu Gly Arg His Ala Gly Pro | |
| 265 270 275 | |
| ggc gga cta cca gag aag gac ctg ggc ccg ggg ctg tca gtg ctc gga | 981 |
| Gly Gly Leu Pro Glu Lys Asp Leu Gly Pro Gly Leu Ser Val Leu Gly | |
| 280 285 290 | |
| ggc ctc ttc ctg ctc ttt gtg ctg gag aac atg ctg ggg ctt ttg cgg | 1029 |
| Gly Leu Phe Leu Leu Phe Val Leu Glu Asn Met Leu Gly Leu Leu Arg | |
| 295 300 305 | |
| cac cga ggg ctc agg cca aga tgc tgc agg cga aaa cga agg aat ctc | 1077 |
| His Arg Gly Leu Arg Pro Arg Cys Cys Arg Arg Lys Arg Arg Asn Leu | |
| 310 315 320 | |
| gaa aca cgc aac ttg gat ccg gag aat ggc agt ggg atg gcc ctt cag | 1125 |
| Glu Thr Arg Asn Leu Asp Pro Glu Asn Gly Ser Gly Met Ala Leu Gln | |
| 325 330 335 340 | |
| ccc cta cag gca gct cca gag cca ggg gct cag ggc cag agg gag aag | 1173 |
| Pro Leu Gln Ala Ala Pro Glu Pro Gly Ala Gln Gly Gln Arg Glu Lys | |
| 345 350 355 | |
| aac agc cag cac cca cca gct ctg gcc cct cct ggg cac caa ggc cac | 1221 |
| Asn Ser Gln His Pro Pro Ala Leu Ala Pro Pro Gly His Gln Gly His | |
| 360 365 370 | |
| agt cat ggg cac cag ggt ggc act gat atc acg tgg atg gtc ctc ctg | 1269 |
| Ser His Gly His Gln Gly Thr Asp Ile Thr Trp Met Val Leu Leu | |
| 375 380 385 | |
| gga gat ggt cta cac aac ctc act gat ggg ctg gcc ata ggt gct gcc | 1317 |
| Gly Asp Gly Leu His Asn Leu Thr Asp Gly Leu Ala Ile Gly Ala Ala | |
| 390 395 400 | |
| ttc tct gat ggc ttc tcc agc ggc ctc agt acc acc tta gcg gtc ttc | 1365 |
| Phe Ser Asp Gly Phe Ser Ser Gly Leu Ser Thr Thr Leu Ala Val Phe | |
| 405 410 415 420 | |
| tgc cat gag ctg ccc cac gaa ctg ggt gac ttt gcc atg ctg ctc cag | 1413 |
| Cys His Glu Leu Pro His Glu Leu Gly Asp Phe Ala Met Leu Leu Gln | |
| 425 430 435 | |
| tca ggg ctg tcc ttt cgg cgg ctg ctg ctg agc ctc gtg tct gga | 1461 |
| Ser Gly Leu Ser Phe Arg Arg Leu Leu Leu Ser Leu Val Ser Gly | |
| 440 445 450 | |
| gcc ctg gga ttg ggg ggt gca gtc ctg ggg gtg ggg ctc agc ctg ggc | 1509 |
| Ala Leu Gly Leu Gly Gly Ala Val Leu Gly Val Gly Leu Ser Leu Gly | |
| 455 460 465 | |

| | |
|---|------|
| cct gtc ccc ctc act ccc tgg gtg ttt ggg gtc act gct ggg gtc ttc | 1557 |
| Pro Val Pro Leu Thr Pro Trp Val Phe Gly Val Thr Ala Gly Val Phe | |
| 470 475 480 | |
| cct tat gtg gcc ctt gtg gac atg cta cca gcc ctg ctt cgt cct ccg | 1605 |
| Leu Tyr Val Ala Leu Val Asp Met Leu Pro Ala Leu Leu Arg Pro Pro | |
| 485 490 495 500 | |
| gag ccc ctg cct acg ccc cat gtg ctc ctg cag ggg ctg ggg ctg ctg | 1653 |
| Glu Pro Leu Pro Thr Pro His Val Leu Leu Gln Gly Leu Gly Leu Leu | |
| 505 510 515 | |
| ctg ggg ggc ggc ctc atg ctt gcc ata acc ctg ctg gag gag cggttgc | 1701 |
| Leu Gly Gly Leu Met Leu Ala Ile Thr Leu Leu Glu Glu Arg Leu | |
| 520 525 530 | |
| ctg ccc gtg acc act gag ggc tga tggggccagt ggaaagggtt cgggttgc | 1755 |
| Leu Pro Val Thr Thr Glu Gly | |
| 535 | |
| ttccttcccc ccaaccacag gaatggaggc gggacacagg gccagtagga gcaataggat | 1815 |
| tttaataaac agaaccatc caaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa | 1875 |
| aaaaaaaaaa aaaaaaaaaa | 1895 |

<210> 38
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 <212> PRT
 <213> Homo sapiens

<400> 38

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| Met Gly Ser Pro Val Ser His Leu Leu Ala Gly Phe Cys Val Trp Val | |
| 1 5 10 15 | |

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|---|--|
| Val Leu Gly Trp Val Gly Ser Val Pro Asn Leu Gly Pro Ala Glu | |
| 20 25 30 | |

| | |
|---|--|
| Gln Glu Gln Asn His Tyr Leu Ala Gln Leu Phe Gly Leu Tyr Gly Glu | |
| 35 40 45 | |

| | |
|---|--|
| Asn Gly Thr Leu Thr Ala Gly Gly Leu Ala Arg Leu Leu His Ser Leu | |
| 50 55 60 | |

| | |
|---|--|
| Gly Leu Gly Arg Val Gln Gly Leu Arg Leu Gly Gln His Gly Pro Leu | |
| 65 70 75 80 | |

| | |
|---|--|
| Thr Gly Arg Ala Ala Ser Pro Ala Ala Asp Asn Ser Thr His Arg Pro | |
| 85 90 95 | |

Gln Asn Pro Glu Leu Ser Val Asp Val Trp Ala Gly Met Pro Leu Gly
100 105 110

Pro Ser Gly Trp Gly Asp Leu Glu Glu Ser Lys Ala Pro His Leu Pro
115 120 125

Arg Gly Pro Ala Pro Ser Gly Leu Asp Leu Leu His Arg Leu Leu Leu
130 135 140

Leu Asp His Ser Leu Ala Asp His Leu Asn Glu Asp Cys Leu Asn Gly
145 150 155 160

Ser Gln Leu Leu Val Asn Phe Gly Leu Ser Pro Ala Ala Pro Leu Thr
165 170 175

Pro Arg Gln Phe Ala Leu Leu Cys Pro Ala Leu Leu Tyr Gln Ile Asp
180 185 190

Ser Arg Val Cys Ile Gly Ala Pro Ala Pro Ala Pro Pro Gly Asp Leu
195 200 205

Leu Ser Ala Leu Leu Gln Ser Ala Leu Ala Val Leu Leu Leu Ser Leu
210 215 220

Pro Ser Pro Leu Ser Leu Leu Leu Arg Leu Leu Gly Pro Arg Leu
225 230 235 240

Leu Arg Pro Leu Leu Gly Phe Leu Gly Ala Leu Ala Val Gly Thr Leu
245 250 255

Cys Gly Asp Ala Leu Leu His Leu Leu Pro His Ala Gln Glu Gly Arg
260 265 270

His Ala Gly Pro Gly Gly Leu Pro Glu Lys Asp Leu Gly Pro Gly Leu
275 280 285

Ser Val Leu Gly Gly Leu Phe Leu Leu Phe Val Leu Glu Asn Met Leu
290 295 300

Gly Leu Leu Arg His Arg Gly Leu Arg Pro Arg Cys Cys Arg Arg Lys
305 310 315 320

Arg Arg Asn Leu Glu Thr Arg Asn Leu Asp Pro Glu Asn Gly Ser Gly
325 330 335

Met Ala Leu Gln Pro Leu Gln Ala Ala Pro Glu Pro Gly Ala Gln Gly
340 345 350

Gln Arg Glu Lys Asn Ser Gln His Pro Pro Ala Leu Ala Pro Pro Gly
355 360 365

His Gln Gly His Ser His Gly His Gln Gly Gly Thr Asp Ile Thr Trp
370 375 380

Met Val Leu Leu Gly Asp Gly Leu His Asn Leu Thr Asp Gly Leu Ala
385 390 395 400

Ile Gly Ala Ala Phe Ser Asp Gly Phe Ser Ser Gly Leu Ser Thr Thr
405 410 415

Leu Ala Val Phe Cys His Glu Leu Pro His Glu Leu Gly Asp Phe Ala
420 425 430

Met Leu Leu Gln Ser Gly Leu Ser Phe Arg Arg Leu Leu Leu Ser
435 440 445

Leu Val Ser Gly Ala Leu Gly Leu Gly Gly Ala Val Leu Gly Val Gly
450 455 460

Leu Ser Leu Gly Pro Val Pro Leu Thr Pro Trp Val Phe Gly Val Thr
465 470 475 480

Ala Gly Val Phe Leu Tyr Val Ala Leu Val Asp Met Leu Pro Ala Leu
485 490 495

Leu Arg Pro Pro Glu Pro Leu Pro Thr Pro His Val Leu Leu Gln Gly
500 505 510

Leu Gly Leu Leu Leu Gly Gly Leu Met Leu Ala Ile Thr Leu Leu
515 520 525

Glu Glu Arg Leu Leu Pro Val Thr Thr Glu Gly
530 535

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<211> 2636
<212> DNA
<213> *Homo sapiens*

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<222> (222)..(2186)

<400> 39
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atctttcttc tgaagaaatt ccttggtta caagtttacc ccataaacgg caacacactc 120
acctccatcc aagacagact caaggtggag gaagcgtgga a atg tgc ttc cgg aca 180
Met Cys Phe Arg Thr
1 5 236

aag ctc tca gta tcc tgg gtg cca ttg ttt ctt cta ctc agc cgt gtt 284
Lys Leu Ser Val Ser Trp Val Pro Leu Phe Leu Leu Leu Ser Arg Val
10 15 20

ttt tct act gag aca gac aaa ccc tca gcc cag gac agc aga agc cgt 332
Phe Ser Thr Glu Thr Asp Lys Pro Ser Ala Gln Asp Ser Arg Ser Arg
25 30 35

ggg agt tca ggc caa ccg gca gac ctg cta cag gtt ctc tct gct ggt 380
Gly Ser Ser Gly Gln Pro Ala Asp Leu Leu Gln Val Leu Ser Ala Gly
40 45 50

gac cac cca ccc cac aac cac tca aga agc ctc atc aaa aca ttg ttg 428
Asp His Pro Pro His Asn His Ser Arg Ser Leu Ile Lys Thr Leu Leu
55 60 65

gag aaa act ggg tgc cca cgg agg aga aac gga atg caa gga gat tgc 476
Glu Lys Thr Gly Cys Pro Arg Arg Arg Asn Gly Met Gln Gly Asp Cys
70 75 80 85

aat ctg tgc ttt gaa cca gat gca cta tta cta ata gct gga gga aat 524
Asn Leu Cys Phe Glu Pro Asp Ala Leu Leu Ile Ala Gly Gly Asn
90 95 100

ttt gaa gat cag ctt aga gaa gaa gtg gtc cag aga gtt tct ctt ctc 572
Phe Glu Asp Gln Leu Arg Glu Glu Val Val Gln Arg Val Ser Leu Leu
105 110 115

ctt ctc tat tac att att cat cag gaa gag atc tgt tct tca aag ctc 620
Leu Leu Tyr Tyr Ile Ile His Gln Glu Glu Ile Cys Ser Ser Lys Leu
120 125 130

```

| | |
|---|------|
| aac atg agt aat aaa gag tat aaa ttt tac cta cac agc cta ctg agc | 668 |
| Asn Met Ser Asn Lys Glu Tyr Lys Phe Tyr Leu His Ser Leu Leu Ser | |
| 135 140 145 | |
| ctc agg cag gat gaa gat tcc tct ttc ctt tca cag aat gag aca gaa | 716 |
| Leu Arg Gln Asp Glu Asp Ser Ser Phe Leu Ser Gln Asn Glu Thr Glu | |
| 150 155 160 165 | |
| gat atc ttg gct ttc acc agg cag tac ttt gac act tct caa agc cag | 764 |
| Asp Ile Leu Ala Phe Thr Arg Gln Tyr Phe Asp Thr Ser Gln Ser Gln | |
| 170 175 180 | |
| tgt atg gaa acc aaa acg ctg cag aaa aaa tct gga ata gtg agc agt | 812 |
| Cys Met Glu Thr Lys Thr Leu Gln Lys Lys Ser Gly Ile Val Ser Ser | |
| 185 190 195 | |
| gaa ggt gct aat gaa agt acg ctt cct cag ttg gca gcc atg atc att | 860 |
| Glu Gly Ala Asn Glu Ser Thr Leu Pro Gln Leu Ala Ala Met Ile Ile | |
| 200 205 210 | |
| act ttg tcc ctc cag ggt gtt tgt ctg gga caa gga aac ttg cct tcc | 908 |
| Thr Leu Ser Leu Gln Gly Val Cys Leu Gly Gln Asn Leu Pro Ser | |
| 215 220 225 | |
| cca gac tac ttt aca gaa tat att ttc agt tcc ttg aat cgt acg aat | 956 |
| Pro Asp Tyr Phe Thr Glu Tyr Ile Phe Ser Ser Leu Asn Arg Thr Asn | |
| 230 235 240 245 | |
| acc ctc cgc cta tca gaa cta gac caa ctc ctc aac act ctc tgg acc | 1004 |
| Thr Leu Arg Leu Ser Glu Leu Asp Gln Leu Leu Asn Thr Leu Trp Thr | |
| 250 255 260 | |
| aga agt act tgt atc aaa aat gag aaa atc cat caa ttt caa agg aaa | 1052 |
| Arg Ser Thr Cys Ile Lys Asn Glu Lys Ile His Gln Phe Gln Arg Lys | |
| 265 270 275 | |
| caa aac aac ata ata acc cat gat cag ggc tat tct aat ttc tct tca | 1100 |
| Gln Asn Asn Ile Ile Thr His Asp Gln Gly Tyr Ser Asn Phe Ser Ser | |
| 280 285 290 | |
| tcc atg gaa aaa gag tct gag gat ggt cca gtt tcc tgg gat cag acc | 1148 |
| Ser Met Glu Lys Glu Ser Glu Asp Gly Pro Val Ser Trp Asp Gln Thr | |
| 295 300 305 | |
| tgc ttc tct gct agg cag ctg gtg gag ata ttt cta cag aag ggc ctc | 1196 |
| Cys Phe Ser Ala Arg Gln Leu Val Glu Ile Phe Leu Gln Lys Gly Leu | |
| 310 315 320 325 | |
| tca ctc att tct aag gag gac ttt aag caa atg agt cca ggg atc atc | 1244 |
| Ser Leu Ile Ser Lys Glu Asp Phe Lys Gln Met Ser Pro Gly Ile Ile | |
| 330 335 340 | |
| cag cag ctc ctc agc tgc tcc cac tta ccc aag gac caa caa gca | 1292 |
| Gln Gln Leu Leu Ser Cys Ser Cys His Leu Pro Lys Asp Gln Gln Ala | |
| 345 350 355 | |

| | |
|---|------|
| aag ctg cca cct acc act ctg gag aaa tac ggc tac agc acg gtg gct | 1340 |
| Lys Leu Pro Pro Thr Thr Leu Glu Lys Tyr Gly Tyr Ser Thr Val Ala | |
| 360 365 370 | |
| gtc acc ctt ctc aca ctg ggc tcc atg ctg ggg aca gcg ctg gtc ctt | 1388 |
| Val Thr Leu Leu Thr Leu Gly Ser Met Leu Gly Thr Ala Leu Val Leu | |
| 375 380 385 | |
| ttc cat agc tgt gag gag aac tac agg ctt atc tta cag ctg ttt gtg | 1436 |
| Phe His Ser Cys Glu Glu Asn Tyr Arg Leu Ile Leu Gln Leu Phe Val | |
| 390 395 400 405 | |
| ggc ttg gcc gtc ggg aca ctg tct ggg gac gct ctg ctc cac ctt atc | 1484 |
| Gly Leu Ala Val Gly Thr Leu Ser Gly Asp Ala Leu Leu His Leu Ile | |
| 410 415 420 | |
| cct cag gtt ctt ggt tta cat aag cag gaa gcc cca gaa ttt ggg cat | 1532 |
| Pro Gln Val Leu Gly Leu His Lys Gln Glu Ala Pro Glu Phe Gly His | |
| 425 430 435 | |
| ttc cat gaa agc aaa ggt cat att tgg aaa ctg atg gga tta att gga | 1580 |
| Phe His Glu Ser Lys Gly His Ile Trp Lys Leu Met Gly Leu Ile Gly | |
| 440 445 450 | |
| ggc atc cat gga ttt ttc ttg ata gaa aaa tgt ttt att ctt ctt gta | 1628 |
| Gly Ile His Gly Phe Phe Leu Ile Glu Lys Cys Phe Ile Leu Leu Val | |
| 455 460 465 | |
| tca cca aat gac aag aaa agc cca gaa gat tca cag gca gct gaa atg | 1676 |
| Ser Pro Asn Asp Lys Lys Ser Pro Glu Asp Ser Gln Ala Ala Glu Met | |
| 470 475 480 485 | |
| cct ata ggc agt atg aca gcc tcc aac aga aaa tgt aaa gcc att agc | 1724 |
| Pro Ile Gly Ser Met Thr Ala Ser Asn Arg Lys Cys Lys Ala Ile Ser | |
| 490 495 500 | |
| ttg tta gca atc atg att ctg gtt ggg gac agc ctg cat aat ttt gca | 1772 |
| Leu Leu Ala Ile Met Ile Leu Val Gly Asp Ser Leu His Asn Phe Ala | |
| 505 510 515 | |
| gat ggc cta gcc ata gga gca gcc ttc tca tca tca tcc gag tca gga | 1820 |
| Asp Gly Leu Ala Ile Gly Ala Ala Phe Ser Ser Ser Glu Ser Gly | |
| 520 525 530 | |
| gtg acc act acg att gct atc ttg tgt cat gaa atc cca cat gaa atg | 1868 |
| Val Thr Thr Ile Ala Ile Leu Cys His Glu Ile Pro His Glu Met | |
| 535 540 545 | |
| gga gac ttt gcc gtg ctc tta agc tct gga ctt tct atg aag act gcc | 1916 |
| Gly Asp Phe Ala Val Leu Leu Ser Ser Gly Leu Ser Met Lys Thr Ala | |
| 550 555 560 565 | |
| atc ctg atg aat ttt ata agc tcc cta act gcc ttc atg gga tta tac | 1964 |
| Ile Leu Met Asn Phe Ile Ser Ser Leu Thr Ala Phe Met Gly Leu Tyr | |
| 570 575 580 | |

| | |
|---|------|
| att ggc ctt tcc gtg tca gct gat cca tgt gtt caa gac tgg atc ttc | 2012 |
| Ile Gly Leu Ser Val Ser Ala Asp Pro Cys Val Gln Asp Trp Ile Phe | |
| 585 590 595 | |
| aca gtc act gct ggg atg ttc tta tat tta tcc ttg gtt gaa atg ctt | 2060 |
| Thr Val Thr Ala Gly Met Phe Leu Tyr Leu Ser Leu Val Glu Met Leu | |
| 600 605 610 | |
| cct gaa atg act cat gtt caa aca caa cga ccc tgg atg atg ttt ctc | 2108 |
| Pro Glu Met Thr His Val Gln Thr Gln Arg Pro Trp Met Met Phe Leu | |
| 615 620 625 | |
| ctg caa aac ttt gga ttg atc cta ggt tgg ctt tct ctc ctg ctc ttg | 2156 |
| Leu Gln Asn Phe Gly Leu Ile Leu Gly Trp Leu Ser Leu Leu Leu | |
| 630 635 640 645 | |
| gct ata tat gag caa aat att aaa ata taa gtgaggatct tcaacatctt | 2206 |
| Ala Ile Tyr Glu Gln Asn Ile Lys Ile | |
| 650 | |
| tcaaaaatgc atttatatacg tcttactttg tttctttcat tgcactctat aatgatttt | 2266 |
| aaatattaagaa ttttttatct taggcaaagt gtgtctctt caattcatta acttattaat | 2326 |
| tttataatgc agttttatattt ttggaaacat ataaatatca gactgtcctt aattgaaatt | 2386 |
| ttgtctttgg ttccaaacac catgatgaag ctcttgcttt taaaaagta gtttagtaat | 2446 |
| tctgcatgaa ttttagtaaa cttaaaaaaa tagattttt ccctaagaaa gaatgttgt | 2506 |
| agaattnaaa gtggacagat gcctgttggg gtaaaatcaa ctgcaacttt ttgatgttaa | 2566 |
| ttttttccc tgtgcaatta taaactataa gcaagttaa tgacaagcaa atgtaataaa | 2626 |
| gactagttt | 2636 |

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Leu Leu Ser Arg Val Phe Ser Thr Glu Thr Asp Lys Pro Ser Ala Gln
 20 25 30

Asp Ser Arg Ser Arg Gly Ser Ser Gly Gln Pro Ala Asp Leu Leu Gln
 35 40 45

Val Leu Ser Ala Gly Asp His Pro Pro His Asn His Ser Arg Ser Leu
50 55 60

Ile Lys Thr Leu Leu Glu Lys Thr Gly Cys Pro Arg Arg Arg Asn Gly
65 70 75 80

Met Gln Gly Asp Cys Asn Leu Cys Phe Glu Pro Asp Ala Leu Leu Leu
85 90 95

Ile Ala Gly Gly Asn Phe Glu Asp Gln Leu Arg Glu Glu Val Val Gln
100 105 110

Arg Val Ser Leu Leu Leu Tyr Tyr Ile Ile His Gln Glu Glu Ile
115 120 125

Cys Ser Ser Lys Leu Asn Met Ser Asn Lys Glu Tyr Lys Phe Tyr Leu
130 135 140

His Ser Leu Leu Ser Leu Arg Gln Asp Glu Asp Ser Ser Phe Leu Ser
145 150 155 160

Gln Asn Glu Thr Glu Asp Ile Leu Ala Phe Thr Arg Gln Tyr Phe Asp
165 170 175

Thr Ser Gln Ser Gln Cys Met Glu Thr Lys Thr Leu Gln Lys Lys Ser
180 185 190

Gly Ile Val Ser Ser Glu Gly Ala Asn Glu Ser Thr Leu Pro Gln Leu
195 200 205

Ala Ala Met Ile Ile Thr Leu Ser Leu Gln Gly Val Cys Leu Gly Gln
210 215 220

Gly Asn Leu Pro Ser Pro Asp Tyr Phe Thr Glu Tyr Ile Phe Ser Ser
225 230 235 240

Leu Asn Arg Thr Asn Thr Leu Arg Leu Ser Glu Leu Asp Gln Leu Leu
245 250 255

Asn Thr Leu Trp Thr Arg Ser Thr Cys Ile Lys Asn Glu Lys Ile His
260 265 270

Gln Phe Gln Arg Lys Gln Asn Asn Ile Ile Thr His Asp Gln Gly Tyr
275 280 285

Ser Asn Phe Ser Ser Ser Met Glu Lys Glu Ser Glu Asp Gly Pro Val
290 295 300

Ser Trp Asp Gln Thr Cys Phe Ser Ala Arg Gln Leu Val Glu Ile Phe
305 310 315 320

Leu Gln Lys Gly Leu Ser Leu Ile Ser Lys Glu Asp Phe Lys Gln Met
325 330 335

Ser Pro Gly Ile Ile Gln Gln Leu Leu Ser Cys Ser Cys His Leu Pro
340 345 350

Lys Asp Gln Gln Ala Lys Leu Pro Pro Thr Thr Leu Glu Lys Tyr Gly
355 360 365

Tyr Ser Thr Val Ala Val Thr Leu Leu Thr Leu Gly Ser Met Leu Gly
370 375 380

Thr Ala Leu Val Leu Phe His Ser Cys Glu Glu Asn Tyr Arg Leu Ile
385 390 395 400

Leu Gln Leu Phe Val Gly Leu Ala Val Gly Thr Leu Ser Gly Asp Ala
405 410 415

Leu Leu His Leu Ile Pro Gln Val Leu Gly Leu His Lys Gln Glu Ala
420 425 430

Pro Glu Phe Gly His Phe His Glu Ser Lys Gly His Ile Trp Lys Leu
435 440 445

Met Gly Leu Ile Gly Gly Ile His Gly Phe Phe Leu Ile Glu Lys Cys
450 455 460

Phe Ile Leu Leu Val Ser Pro Asn Asp Lys Lys Ser Pro Glu Asp Ser
465 470 475 480

Gln Ala Ala Glu Met Pro Ile Gly Ser Met Thr Ala Ser Asn Arg Lys
485 490 495

Cys Lys Ala Ile Ser Leu Leu Ala Ile Met Ile Leu Val Gly Asp Ser
 500 505 510

Leu His Asn Phe Ala Asp Gly Leu Ala Ile Gly Ala Ala Phe Ser Ser
 515 520 525

Ser Ser Glu Ser Gly Val Thr Thr Ile Ala Ile Leu Cys His Glu
 530 535 540

Ile Pro His Glu Met Gly Asp Phe Ala Val Leu Leu Ser Ser Gly Leu
 545 550 555 560

Ser Met Lys Thr Ala Ile Leu Met Asn Phe Ile Ser Ser Leu Thr Ala
 565 570 575

Phe Met Gly Leu Tyr Ile Gly Leu Ser Val Ser Ala Asp Pro Cys Val
 580 585 590

Gln Asp Trp Ile Phe Thr Val Thr Ala Gly Met Phe Leu Tyr Leu Ser
 595 600 605

Leu Val Glu Met Leu Pro Glu Met Thr His Val Gln Thr Gln Arg Pro
 610 615 620

Trp Met Met Phe Leu Leu Gln Asn Phe Gly Leu Ile Leu Gly Trp Leu
 625 630 635 640

Ser Leu Leu Leu Leu Ala Ile Tyr Glu Gln Asn Ile Lys Ile
 645 650

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 Met Pro Gly Cys
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|---|-----|
| ccc tgc cct ggc tgt ggc atg gcg ggc cca agg ctc ctc ttc ctc act | 102 |
| Pro Cys Pro Gly Cys Gly Met Ala Gly Pro Arg Leu Leu Phe Leu Thr | |
| 5 10 15 20 | |
| gcc ctt gcc ctg gag ctc ttg gga agg gct ggg ggt tcc cag ccg gcc | 150 |
| Ala Leu Ala Leu Glu Leu Leu Gly Arg Ala Gly Ser Gln Pro Ala | |
| 25 30 35 | |
| ctc cgg agc cgg ggg act gcg acg gcc tgt cgc ctg gac aac aag gaa | 198 |
| Leu Arg Ser Arg Gly Thr Ala Thr Ala Cys Arg Leu Asp Asn Lys Glu | |
| 40 45 50 | |
| agc gag tcc tgg ggg gct ctg ctg agc gga gag cgg ctg gac acc tgg | 246 |
| Ser Glu Ser Trp Gly Ala Leu Leu Ser Gly Glu Arg Leu Asp Thr Trp | |
| 55 60 65 | |
| atc tgc tcc ctc ctg ggt tcc ctc atg gtg ggg ctc agt ggg gtc ttc | 294 |
| Ile Cys Ser Leu Leu Gly Ser Leu Met Val Gly Leu Ser Gly Val Phe | |
| 70 75 80 | |
| ccg ttg ctt gtc att ccc cta gag atg ggg acc atg ctg cgc tca gaa | 342 |
| Pro Leu Leu Val Ile Pro Leu Glu Met Gly Thr Met Leu Arg Ser Glu | |
| 85 90 95 100 | |
| gct ggg gcc tgg cgc ctg aag cag ctg ctc agc ttc gcc ctg ggg gga | 390 |
| Ala Gly Ala Trp Arg Leu Lys Gln Leu Leu Ser Phe Ala Leu Gly Gly | |
| 105 110 115 | |
| ctc ttg ggc aat gtg ttt ctg cat ctg ctg ccc gaa gcc tgg gcc tac | 438 |
| Leu Leu Gly Asn Val Phe Leu His Leu Leu Pro Glu Ala Trp Ala Tyr | |
| 120 125 130 | |
| acg tgc agc gcc agc cct ggt ggt gag ggg cag agc ctg cag cag cag | 486 |
| Thr Cys Ser Ala Ser Pro Gly Gly Glu Gly Gln Ser Leu Gln Gln Gln | |
| 135 140 145 | |
| caa cag ctg ggg ctg tgg gtc att gct ggc atc ctg acc ttc ctg gcg | 534 |
| Gln Gln Leu Gly Leu Trp Val Ile Ala Gly Ile Leu Thr Phe Leu Ala | |
| 150 155 160 | |
| ttg gag aag atg ttc ctg gac agc aag gag gag ggg acc agc cag gcc | 582 |
| Leu Glu Lys Met Phe Leu Asp Ser Lys Glu Glu Gly Thr Ser Gln Ala | |
| 165 170 175 180 | |
| ccc aac aaa gac ccc act gct gct gcc gca ctc aat gga ggc cac | 630 |
| Pro Asn Lys Asp Pro Thr Ala Ala Ala Leu Asn Gly Gly His | |
| 185 190 195 | |
| tgt ctg gcc cag ccg gct gca gag ccc ggc ctc ggt gcc gtg gtc cgg | 678 |
| Cys Leu Ala Gln Pro Ala Ala Glu Pro Gly Leu Gly Ala Val Val Arg | |
| 200 205 210 | |
| agc atc aaa gtc agc ggc tac ctc aac ctg ctg gcc aac acc acc atc gat | 726 |
| Ser Ile Lys Val Ser Gly Tyr Leu Asn Leu Leu Ala Asn Thr Ile Asp | |
| 215 220 225 | |

| | |
|---|------|
| aac ttc acc cac ggg ctg gct gtg gct gcc agc ttc ctt gtg agc aag | 774 |
| Asn Phe Thr His Gly Leu Ala Val Ala Ala Ser Phe Leu Val Ser Lys | |
| 230 235 240 | |
| aag atc ggg ctc ctg aca acc atg gcc atc ctc ctg cat gag atc ccc | 822 |
| Lys Ile Gly Leu Leu Thr Thr Met Ala Ile Leu Leu His Glu Ile Pro | |
| 245 250 255 260 | |
| cat gag gtg ggc gac ttt gcc atc ctg ctc cg ^g gcc ggc ttt gac cga | 870 |
| His Glu Val Gly Asp Phe Ala Ile Leu Leu Arg Ala Gly Phe Asp Arg | |
| 265 270 275 | |
| tgg agc gca gcc aag ctg caa ctc tca aca gc ^g ctg ggg ggc cta ctg | 918 |
| Trp Ser Ala Ala Lys Leu Gln Leu Ser Thr Ala Leu Gly Gly Leu Leu | |
| 280 285 290 | |
| ggc gct ggc ttc gcc atc tgt acc cag tcc ccc aag gga gta gtt ggg | 966 |
| Gly Ala Gly Phe Ala Ile Cys Thr Gln Ser Pro Lys Gly Val Val Gly | |
| 295 300 305 | |
| tgt tct ccc gct gca gag gag acg gca gcc tgg gtc ctg ccc ttc acc | 1014 |
| Cys Ser Pro Ala Ala Glu Glu Thr Ala Ala Trp Val Leu Pro Phe Thr | |
| 310 315 320 | |
| tct ggc ggc ttt ctc tac atc gcc ttg gtg aac gtg ctc cct gac ctc | 1062 |
| Ser Gly Gly Phe Leu Tyr Ile Ala Leu Val Asn Val Leu Pro Asp Leu | |
| 325 330 335 340 | |
| ttg gaa gaa gag gac ccg tgg cgc tcc ctg cag cag ctg ctt ctg ctc | 1110 |
| Leu Glu Glu Asp Pro Trp Arg Ser Leu Gln Gln Leu Leu Leu Leu | |
| 345 350 355 | |
| tgt gcg ggc atc gtg gta atg gtg ctg ttc tc ^g ctc ttc gtg gat taa | 1158 |
| Cys Ala Gly Ile Val Val Met Val Leu Phe Ser Leu Phe Val Asp | |
| 360 365 370 | |
| ctttccctga tgccgacgcc cctgccccct gcagcaataa gatgctcgga ttcactctgt | 1218 |
| gaccgcataat gtgagaggca gagagggcga gtggctgcga gagagaatga gcctcccgcc | 1278 |
| agacaggagg gaggtgcgtg tggatgtatg tgggtgtgcac atgtggccag aggtgtgtgc | 1338 |
| gcgagaccga cactgtgatc cctgtgctgg gtccggggcc cagtgttagcg cctgtccccca | 1398 |
| gccatgctgt ggttacctct cttggccgcc ctgtcacctt cacctcctgg agtaaggcagc | 1458 |
| gaggaagagc agcaactggtc ccaagcagag gccttgccct gctgggaccc cgggagttag | 1518 |
| agcagccaa ggatcccagg gtgcagggaa ctccagagct gcccacctcc cactgcccc | 1578 |
| tcagcacaca cacagtcccc aggccgccta ggggccaagg ctggggcggc tttggccct | 1638 |
| tttcctggcc cttccttccc cacttctaag ccaaagaaag gagaggcagg tgctcctgta | 1698 |
| ccccagcccc actcagcact gacagtcccc agtcctagt agtgagctgg gagggcgcttc | 1758 |

| | | | | | | |
|--------------|------------|-------------|-------------|-------------|-------------|------|
| ctaagaccct | ttcctcaggg | ctgccctggg | agtcattcc | tggccaaacac | gccctggcag | 1818 |
| caccagcagc | tcttgcacc | tccagctgcc | aaacagcagc | ctgcccggca | gggagcagcc | 1878 |
| ccaggccaga | gaggcctccc | ggtccagctc | agggatgctc | ctgccagcac | aggggccagg | 1938 |
| gactcctgga | gcaggcacat | agttagcccg | ggcagccctg | cccagctcag | gcccccattcc | 1998 |
| ttccccattg | aggttggggt | aggtagggggc | ggtgagggct | ccacgttgc | agcgctcagg | 2058 |
| aatgtgtcc | ggcagagtgc | tgaagccata | atccccaaacc | atttcccttg | gctgacgccc | 2118 |
| aggtaactcag | ctggcccact | ccacagccag | gcctggccct | gcccttcacc | gtggatgttt | 2178 |
| tcagaagtgg | ccatcgagag | gtctggatgg | ttttatagca | actttgctgt | gattccgttt | 2238 |
| gtatctgtaa | atatttggtc | tatagataag | atacaaataa | atattatcca | cataaaaaaa | 2298 |
| aaaaaaaaaa a | | | | | | 2309 |

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<400> 42

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Gly | Cys | Pro | Cys | Pro | Gly | Cys | Gly | Met | Ala | Gly | Pro | Arg | Leu |
| 1 | | | | | | | | | | | | | | | 15 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Phe | Leu | Thr | Ala | Leu | Ala | Leu | Glu | Leu | Leu | Gly | Arg | Ala | Gly | Gly |
| | | | | | | | | | | | | | | | 30 |
| 20 | | | | | | | | 25 | | | | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Gln | Pro | Ala | Leu | Arg | Ser | Arg | Gly | Thr | Ala | Thr | Ala | Cys | Arg | Leu |
| | | | | | | | | | | | | | | | |
| 35 | | | | | | | 40 | | | | | | 45 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Asn | Lys | Glu | Ser | Glu | Ser | Trp | Gly | Ala | Leu | Leu | Ser | Gly | Glu | Arg |
| | | | | | | | | | | | | | | | |
| 50 | | | | | | | 55 | | | | | | 60 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asp | Thr | Trp | Ile | Cys | Ser | Leu | Leu | Gly | Ser | Leu | Met | Val | Gly | Leu |
| | | | | | | | | | | | | | | | |
| 65 | | | | | | | 70 | | | | | 75 | | 80 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Gly | Val | Phe | Pro | Leu | Leu | Val | Ile | Pro | Leu | Glu | Met | Gly | Thr | Met |
| | | | | | | | | | | | | | | | |
| 85 | | | | | | | | 90 | | | | | 95 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Arg | Ser | Glu | Ala | Gly | Ala | Trp | Arg | Leu | Lys | Gln | Leu | Leu | Ser | Phe |
| | | | | | | | | | | | | | | | |
| 100 | | | | | | | | 105 | | | | | 110 | | |

Ala Leu Gly Gly Leu Leu Gly Asn Val Phe Leu His Leu Leu Pro Glu
115 120 125

Ala Trp Ala Tyr Thr Cys Ser Ala Ser Pro Gly Gly Glu Gly Gln Ser
130 135 140

Leu Gln Gln Gln Gln Leu Gly Leu Trp Val Ile Ala Gly Ile Leu
145 150 155 160

Thr Phe Leu Ala Leu Glu Lys Met Phe Leu Asp Ser Lys Glu Glu Gly
165 170 175

Thr Ser Gln Ala Pro Asn Lys Asp Pro Thr Ala Ala Ala Ala Leu
180 185 190

Asn Gly Gly His Cys Leu Ala Gln Pro Ala Ala Glu Pro Gly Leu Gly
195 200 205

Ala Val Val Arg Ser Ile Lys Val Ser Gly Tyr Leu Asn Leu Leu Ala
210 215 220

Asn Thr Ile Asp Asn Phe Thr His Gly Leu Ala Val Ala Ala Ser Phe
225 230 235 240

Leu Val Ser Lys Lys Ile Gly Leu Leu Thr Thr Met Ala Ile Leu Leu
245 250 255

His Glu Ile Pro His Glu Val Gly Asp Phe Ala Ile Leu Leu Arg Ala
260 265 270

Gly Phe Asp Arg Trp Ser Ala Ala Lys Leu Gln Leu Ser Thr Ala Leu
275 280 285

Gly Gly Leu Leu Gly Ala Gly Phe Ala Ile Cys Thr Gln Ser Pro Lys
290 295 300

Gly Val Val Gly Cys Ser Pro Ala Ala Glu Glu Thr Ala Ala Trp Val
305 310 315 320

Leu Pro Phe Thr Ser Gly Gly Phe Leu Tyr Ile Ala Leu Val Asn Val
325 330 335

Leu Pro Asp Leu Leu Glu Glu Asp Pro Trp Arg Ser Leu Gln Gln
340 345 350

Leu Leu Leu Leu Cys Ala Gly Ile Val Val Met Val Leu Phe Ser Leu
355 360 365

Phe Val Asp
370

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